TRANSACTIONS OF THE SOCIETY
FOR BRITISH ENTOMOLOGY

VOL. 15 NOVEMBER 1963 PART IX

Additions and Corrections to the British List of Eulophidae (Hym., Chalcidoidea), with Descriptions of some New Species

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In a previous paper on British Eulophidae (Graham, 1959, *Trans. Soc. Brit. Ent.* 13 (10): 169-204) a mention was made of a few undetermined species of Entedontinae, whilst some undescribed species were omitted. The opportunity is now taken of validating the new species, and of making some corrections, so as to bring the list up to date.

I wish to thank the following who have helped in various ways:

Dr. Zdenek Bouček, National Museum, Prague; Dr. M. F. Claridge, Dept. of Zoology, University College, Cardiff; Dr. J. Erdös, Tompa, Hungary; Mr. G. J. Kerrich, Commonwealth Institute of Entomology, London; Prof. C. H. Lindroth, Universitetets Zoologiska Institution, Lund, Sweden; The Director and Staff of the National Museum of Ireland, Dublin; Dr. J. F. Perkins and his assistants in the Hymenoptera Dept. of the British Museum (Nat. Hist.); Mr. A. W. Stelfox, Newcastle, Co. Down, N. Ireland; Prof. G. C. Varley, Oxford; The Nature Conservancy, who financed expeditions to Freshfield, Lancashire, where some of the new species here described were captured; also Mrs. A. Smith, who prepared the typescript of this paper.

Note.—I am adopting here Thomson's term "dorsellum" for the structure referred to as the metascutellum in my 1959 paper.

TETRACAMPIDAE

(Tetracampinae of 1959 paper)

A synopsis of this group was omitted from my paper of 1959 because the taxonomy was not quite satisfactory. Soon afterwards the author received a copy of Bouček's revision of the European species (1958, *Acta ent. Mus. Nat. Pragae,* 32 (491): 41-90). In this excellent paper (in which the group is elevated to family rank) Dr. Bouček has resolved nearly all the taxonomic problems. Since his keys to genera and species cover those found in Britain, reference may be made to them for determinations. The following notes are included to correct the synonymy of the British list of Kloet and Hincks (1945) and to add some species. The essential synonyms only are cited here; for additional information, see Bouček (*loc. cit.*).

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Platynocheilus Westwood, 1837

In Bouček's key to the genera of European Tetracampidae (1958, *Acta ent. Mus. Nat. Pragae,* 32 (491): 47) it is stated that the antennae of *Platynocheilus* are 12-segmented with 1 anellus and 6 funicular segments. This is so in females; but males actually have 11-segmented antennae, there being only 5 funicular segments instead of 6.

Bouček (1958, *ibid.*: 50-56) recognizes two European species to which he applies the names *cuprifrons* (Nees) and *gravenhorsti* (Ratzeburg); he suggests, however (*ibid.*: 53) that the latter might prove to be a race of the former. *P. cuprifrons* (Nees) and *P. erichsonii* Westwood, often treated as distinct species, are regarded by Bouček as forms of one; he states that the characters supposed to distinguish them, i.e., the colour of the legs and of the head, and the sculpture of the mesopleuron, are unreliable. Neither can I distinguish two forms on the basis of these characters even in the small amount of material available to me. At the same time, I am rather puzzled by some features in the variation of our *Platynocheilus,* and agree with Bouček that further research is desirable. Meanwhile, I tentatively refer our British and Irish material to *cuprifrons.*

Platynocheilus cuprifrons (Nees)

Pteromalus cuprifrons Nees, 1834, *Hym. Ichn. affin. Mon.,* **2**: 96, ♀ [nec ♂].

Platynocheilus Erichsonii Westwood, 1837, *Ent. Mag.*, **4**: 437, ♂.

Stenocera Derceto Walker, 1839, *Mon. Chalciditum,* **1**: 275, ♀.

Pterocoma linearis Förster, 1841, *Beitr. Mon. Pterom. Nees*: 34, figs. 27, a, b, "♀" [recte ♂].

Bouček mentions amongst the diagnostic characters of *cuprifrons,* the relatively short malar space (about half as long as the eyes) and the very large anterior tentorial pits of the male. In the females which I refer to *cuprifrons* the malar space is very slightly more than half the length of an eye; the males which I think belong to *cuprifrons* have large tentorial pits each of which is continued by an impressed line as far as the malar sulcus, but on the other hand they have the malar space longer than in the females (nearly two-thirds the length of an eye). The females have the funicular segments of the antennae relatively short, as a rule quadrate (though the first two may be very slightly longer than broad, whilst the last two may be slightly transverse); the scape is slightly shorter than the eye. In some males only the first two funicular segments are slightly elongate and the rest are quadrate; but usually all the segments are more or less elongate, the proximal ones sometimes nearly twice as long as broad. The degree of elongation of the segments is apparently to some extent (but not completely) correlated with absolute size.

Westwood (1837: 437) described the male of *erichsonii* from material in Erichson's collection taken near Berlin. There are no specimens in Westwood's collection; probably the male in Berlin mentioned by Bouček (1958, *ibid.*: 53) is the type.

Walker described *Stenocera derceto* from material "Found by Mr. Haliday, at Holywood, near Belfast, Ireland" (Walker, 1839: 276). Haliday's collection contains a female syntype (no. 64) labelled "Derceto" in Walker's handwriting. The British Museum (Nat. Hist.) collection contains another Haliday specimen, which agrees rather better with the description and is now selected as lectotype; it is mounted on an octagonal card and bears a label reading "Platynocheilus Derceto Walker. Stood under this name in the old B.M. collection. C. Waterhouse". Both the Haliday specimens are very similar, having coppery-bronze head and relatively dark legs.

I have seen a male from Förster's collection named as *Pterocoma linearis.*

New records:

England: Berkshire, Wytham, 15.v.1957, one male; Buckinghamshire, Hell Coppice, near Oakley, 28.v.1952, one male (Graham); Gloucestershire, Hallen Woods, near Bristol, 3.v.1927, one male (B. N .Blood); Oxfordshire, Bald Hill, near Lewknor, 26.vi.1959, one female (Graham).

Scotland: Mid Perth., Lawers, 27.vi.1952, one female (Graham).

Ireland: Co. Dublin, North Bull, 31.vi.1955, one male (Stelfox).

[*Platynocheilus* sp.

Platynicheilus gravenhorstii (Ratzburg), *sensu* Bouček, 1958, *Acta ent. Mus. Nat. Pragae,* **32** (491): 50, 52 (nec *Pteromalus* (*Pterolycus*) *Gravenhorstii* Ratzeburg, 1852, *Ichn. Forstins.,* **3**: 245).

The identification of this species with *gravenhorstii* Ratzeburg originated from personal communications to various authors by Dr. Novitzky, who believed that a *Platynocheilus* species which he had reared from *Agromyza* spp. (Dipt.) in twigs of *Clematis vitalba* and *C. recta,* was Ratzeburg's *gravenhorstii.*

I consider this identification very doubtful. Ratzeburg (1852: 245) placed *gravenhorstii* in his section 3 (*Pterolycus*) of *Pteromalus;* the diagnosis of this section states "Der Costalnerv [postmarginal vein] ist 3-5 mal so lang als der Radialnerv [stigmal vein]". The two other species which he includes in *Pterolycus* (*Brandtii* and *Lichtensteinii*) have been recognized as belonging to the tribe Trigonoderini of the Pteromalidae. It seems likely that *gravenhorstii* also belongs to this tribe; in my opinion it is most probably a *Platygerrhus.* All the species of this tribe have a long postmarginal vein; but in *Platynocheilus* this vein is at most 1·5 times as long as the stigmal vein. Moreover, the host of *gravenhorstii* recorded by Ratzeburg was "*Bostrichus bispinus*" [=*Xylocleptes bispinus* Duftschm.] a beetle which also lives in stems of *Clematis*, which would accord better with the idea that *gravenhorstii* is a Trigonoderine.]

Tetracampe Förster, 1841

Tetracampe impressa Förster, 1841

In the Check List of Kloet and Hincks (1945: 299) *Tetracampe impressa* Förster is wrongly placed as a synonym of [*Entedon*] *panyas* Walker, 1839. Bouček (1958: 79) has shown that *panyas* belongs to a different genus (*Epiclerus* Haliday, see below). *T. impressa* Förster, however, can be retained on the British list on the basis of the following record:

England, Buckinghamshire, Hell Coppice, near Oakley, 30.viii.1958, one female (Graham).

Foersterella Dalla Torre, 1897

Foersterella flavipes (Förster)

Tetracampe flavipes Förster, 1841, *Beitr. Mon. Pteromalinen Nees*: 34.

? *Entedon Temenus* Walker, 1839, *Mon. Chalciditum*, **1**: 122, ♀ [nec ♂].

The name *flavipes* (Förster) does not figure in the Check List of Kloet and Hincks (1945), but is included in Morley's Catalogue (1910: 62) as a synonym of *Tetracampe galerucae* (Fonscolombe). The latter catalogue also cites *Entedon temenus* Walker as a synonym of *galerucae*. This synonymy, which originated with Thomson (1878, *Hym. Scand.*, **5**: 183-4) is incorrect, as pointed out by Bouček (1958: 68-9). Fonscolombe's *galerucae* belongs to the genus *Aprostocetus* (=*Tetrastichus*). As regards *Entedon temenus* Walker, it is clear that the male and the female described by him belong to different species; his male belongs to the Tetracampid genus *Epiclerus* (see below), whilst his female was probably the same as *Foersterella flavipes* (Förster). Thomson (1878, *Hym. Scand.*, **5**: 184) earlier cited "*Entedon Temenus* Walk . . . (femina)" as a synonym of *flavipes*. Clearly the British status of *flavipes* has rested on Walker's record of the female of *temenus*. The following new records, however, confirm that *flavipes* is British:

England: Berkshire, Wytham, 1.vi.1951, one female; 23.viii.1951, one male (Graham).

Foersterella erdoesi Bouček

Bouček, 1958, *Acta ent. Mus. Nat. Pragae*, **32** (491): 65, 69.

New to Britain.

England, Berkshire, Bagley Wood, 18.v.1952, one female (Graham).

Epiclerus Haliday, 1844

Thomson (1878, *Hym. Scand.*, **5**: 182) wrongly synonymized *Epiclerus* with *Tetracampe* Förster; this was followed by Morley (1910: 62) and Kloet and Hincks (1945: 299). *Epiclerus* has been re-instated as a valid generic name by Bouček (1958: 70).

Epiclerus temenus (Walker)

Entedon Temenus Walker, 1839, *Mon. Chalciditum,* **1**: 121.

As pointed out above, *temenus* was incorrectly placed in synonymy with *galerucae* (Fonscolombe). It must now be reinstated in the British list. I have the following new records:

England, Buckinghamshire, Hell Coppice, near Oakley, 2.viii.1957, one male (Graham). Ireland, Co. Dublin, North Bull, 31.v.1955, one male (A. W. Stelfox).

My wife also caught a male specimen in Sweden (Skåne, Falsterbo, 27.vii.1959).

Bouček (1958: 75) pointed out that the type of *temenus* could not be found in the British Museum; he based his concept of the species on the description supported by a Förster specimen named as *temenus*.

The Haliday collection contains a male (no. 1138) labelled as *temenus* and this is certainly a Walker specimen. It agrees in all details with Walker's sectional diagnosis of the male (1839, *loc. cit.*: 121), even having the genitalia exserted as he says; also with the description of the male on page 122. I consider that this male should be taken as lectotype; it agrees with Bouček's concept of *temenus*.

Epiclerus panyas (Walker)

Entedon Panyas Walker, 1839, *Mon. Chalciditum,* **1**: 120.

Hitherto included in *Tetracampe* by Morley (1910: 62) and Kloet and Hincks (1945: 299), its correct generic placing has been recognized by Bouček (1958: 79).

New record:

England, Surrey, Box Hill, one female bred 21.viii.1953 from *Melanagromyza beckeri* Hend. (Dipt., Agromyzidae) by K. A. Spencer.

EULOPHIDAE

Euplectrini

Euplectrus Westwood

In my paper of 1959 (*Trans. Soc. Brit. Ent.,* **13** (10): 175) I mentioned being unsure how many species of *Euplectrus* occur in Britain. The question is not yet settled because of (1) a doubt as to whether *nigriceps* is really British; (2) uncertainty regarding the taxonomic status of the forms here included under *bicolor* s. lat. The forms occurring or presumed to occur in Britain may be distinguished as follows:

1. Head entirely black. Mid lobe of mesoscutum with a distinct and complete median longitudinal carina; scutellum with delicate alutaceous sculpture which is not raised above the general surface; pronotal collar weakly margined .... *nigriceps* Ferrière

— Clypeus, and the face more or less (at least below the antennal toruli), orange-yellow in female, paler yellow in male. Mid lobe of mesoscutum with median longitudinal carina present in at most rather more than the hinder half, sometimes absent; scutellum with striate-reticulate sculpture which is slightly raised above the general surface; pronotal collar distinctly margined (*bicolor* s. lat.) 2

2. Male: whole face below the toruli and as far as the malar sulcus (even the lower part of the gena behind this in some specimens) yellow; this yellow colour projects upwards on each side for a short way along the inner orbits. Female: the orange-yellow colour on the face below the toruli is produced on each side in a lobe which extends at least slightly laterad of the toruli, and sometimes even reaches the eyes; dorsal surface of gaster tending to be more extensively yellow, often with only the margins and one or two cross-bands near the apex black .... *maculiventris* Westw.

— Male: only the clypeus, the face above it as far as the toruli, and the face immediately laterad of the clypeus, yellow. Female: the orange-yellow colour of the face confined to the clypeus and the face below the toruli (not extending laterad outside the level of the toruli); dorsal surface of gaster black with a yellow subtriangular or T-shaped blotch in the middle .... *intactus* Walker

Euplectrus nigriceps Ferrière

Ferrière, 1941, *Bull. ent. Res.*, **32**: 42.

This is a quite distinct species, whose occurrence in Britain, however, needs confirmation. It was described from two females and one male which stood with the series of *bicolor* from Britain in Walker's collection; but the specimens have no locality labels. As a matter of fact, only the holotype female belongs to *nigriceps*; the paratypes are, in my opinion, forms of *bicolor* s. lat. The female paratype now lacks a head. The male paratype appears at first sight to have the head black, but in fact yellow is present on the face although much discoloured and therefore hard to see.

Euplectrus bicolor (Swederus)

Pteromalus bicolor Swederus, 1795, *K. svensk. VetenskAkad. Handl.*, **16**: 204.

Enquiries were made of museums in Sweden regarding the location of the types of *bicolor,* but without success; it seems likely that they have been lost or mislaid.

Dalman (1820, *K. svensk. VetenskAkad. Handl.,* 41) is the first subsequent author who gives any information about *bicolor;* in his plate 8, he illustrates (fig. 44) the male antenna and (figs. 45, 46) the female antenna and wing. One might reasonably select a neotype of *bicolor* from Dalman's material. In his collection there are two damaged specimens under a label "*bicolor* Sw. ♂"; also five specimens under a label "bicolor ♀". Of the latter five specimens, the first belongs to the form here called *intactus* Walker, the others belong to the form *maculiventris* Westwood. Before a neotype is selected, however, it is desirable to ascertain the taxonomic status of these two forms, also to find out which of them has been most frequently understood as *bicolor* by specialists. Only then can the synonymy of the forms noted below be correctly adjusted.

Euplectrus maculiventris Westwood

Westwood, 1832, *Phil. Mag.* (3), **1**: 128.

Type-species of the genus. In Westwood's collection, five specimens stand below a pink label in Westwood's handwriting, reading "EUPLECTRUS Westw. in Phil. Mag". All have data which make them ineligible as types, except the last specimen in the series. This is a female which is now designated as lectotype; it is pinned and staged, and bears a pink label "maculiventris Westw". in Westwood's handwriting.

This form appears to be fairly common in Britain.

Euplectrus intactus Walker

Walker, 1872, *Notes on Chalcidiae,* part 6: 102, ♀.

The holotype female of *intactus* (described from Corsica) is in the British Museum (Nat. Hist.); it is labelled "France" and "Marshall coll. 1904-120".

This form appears to be about as frequent in Britain as the form *maculiventris.*

Although the two forms, *maculiventris* and *intactus,* differ in colour (especially in the male), they do not show any tangible differences in structure. At one time I thought I could find slight distinctions in the structure of the antennae and the breadth of the head, relative to that of the mesoscutum, but now I do not feel so sure. Possibly they are no more than dimorphic colour-forms of one species; if so, they cannot be seasonal forms because they often occur together at the same time.

[*Euplectrus flavipes* (Fonscolombe)

Spalangia ? flavipes Fonscolombe, 1832, *Ann. Sci. nat.,* **26**: 299.

This has often been cited as a possible synonym of *bicolor,* but is, in fact, a quite distinct species. There are syntypes of *flavipes* both in Oxford and in Paris.]

ELACHERTINAE

Miotropis Thomson, 1878

In my paper of 1959 (Graham, *Trans. Soc. Brit. Ent.,* **13** (10): 176) I included as British two forms of *Miotropis* whose specific status appeared rather doubtful, i.e., *unipuncta* (Nees) and *simplex* Thomson. On the basis of further material I am unable to separate the two forms and feel that they must be conspecific; Dr. Bouček holds the same view. The species must be known as *unipuncta* (Nees), 1834.

Cirrospilus Westwood, 1832

Bouček (1959a, *Acta ent. Mus. Nat. Pragae,* **33** (541): 171-194) has revised this genus in a most useful paper. As a result of his work, the British list must be emended as follows:

Cirrospilus subviolaceus Thomson, 1878

In my Key to the British species of *Cirrospilus* (Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 177) I proposed the new name *setulosus* for *unipunctus* Thomson, which I considered to be preoccupied by [*Eulophus*] *unipunctus* Nees. Bouček (1959a: 180) has shown that *subviolaceus* Thomson is an available name for this species, and has placed *setulosus* in synonymy.

Cirrospilus immaculatus Thomson

Thomson, 1878, *Hym. Scand.,* **5**: 202.

This species is included in the Check List of Kloet and Hincks (1945: 298) as a "variety" of *pictus* (Nees). I omitted *immaculatus* from my Key to the British *Cirrospilus* (1959: 177) because I was not quite certain of its status. Bouček (1959, *Acta ent. Mus. Nat. Pragae,* **33** (541): 182) regards *immaculatus* as a good species, and I accept this view. The name should therefore be reinstated in the British list.

New record:

England, Buckinghamshire, Hell Coppice, near Oakley, 18.x.1953, one female (Graham).

Cirrospilus diallus Walker

Cirrospilus Diallus Walker, 1838, *Ann. Mag. nat. Hist.,* **1**: 312.

Cirrospilus elegantissimus Walker, 1838, ibid., **1**: 310; Thomson, 1878, *Hym. Scand.,* **5**: 201 (nec Westwood, 1832).

Cirrospilus walkeri Stephens, 1846, *Illustr. Brit. Ent., Suppl.*: 10, pl. 46, fig. 3, syn. n.

Bouček (1959, *Acta ent. Mus. Nat. Pragae,* **33**: 176) remarks of this species that in Central European examples the mid lobe of the mesoscutum is always metallic, though the side-lobes may be marked with yellow in some Southern European specimens. In Britain both forms occur, but that with the mid lobe metallic is more frequent; occasionally females having both the side-lobes of the mesoscutum and the axillae yellow are to be found in Southern England. On the whole, British females are fairly constant in colour and only rarely do very aberrant specimens occur. Amongst the latter may be mentioned a remarkable female in the collections at Oxford, reared on 10.iii.1928 from oak leaves containing *Lithocolletis* blotch-mines collected in Bagley Wood, Berkshire, by E. G. R. Waters; this has the body and legs yellow with very reduced dark markings, as follows: the ocellar triangle is blackish, the occipital surface of the head has two small fuscous spots, there is a fuscous spot on the mid lobe of the mesoscutum, the scutellum and metanotum are black with a metallic tinge, the median area of the propodeum is black, a fuscous spot encloses each spiracle, whilst the supracoxal flanges, a spot on the lower part of the mesopleuron, and the metapleuron mainly, are fuscous, the gaster has only a broad longitudinal fuscous stripe on its hinder half, and the ovipositor sheaths are blackish. Males which approach the above female in colour occasionally occur in southern England. The legs are usually yellow (but see below).

Stephens (1846: 10) stated that his *C. walkeri* was "found in June, near London" and his description is accompanied by a coloured figure of the insect, drawn by Westwood (Plate 46, fig. 3). The type of *walkeri* does not appear to be in Stephens' collection in the British Museum (Nat. Hist.). In Westwood's collection at Oxford there is a male *Cirrospilus* which agrees perfectly with Stephens' description and figure of *walkeri*; although it was taken on 27.iv.1835 at Coombe in Surrey and so cannot be the type, it provides pretty certain evidence of the identity of *walkeri*. It is a rare colour form of *diallus* having a blackish subapical band on the mid tibiae (in the majority of British specimens all the tibiae are entirely yellow); on the other hand, the body is extensively yellow-marked for the species, the sides of the pronotum and the side-lobes of the mesoscutum being yellow, whilst the axillae are yellow with a black spot. Apart from the black band on the mid tibiae, the legs (including the coxae) are entirely yellow. Structurally this specimen resembles normally coloured males of *diallus*.

I have not myself taken any male *diallus* with a blackish band on the mid tibiae as in the form *walkeri*; but on 7th September 1962 I captured a few females at Studland, Dorset, which have the mid tibiae similarly coloured. These females, however, have all the coxae black and in one specimen the femora are infuscate, whilst the thorax is metallic (except the side-lobes of the mesoscutum, which are partly yellow in three of the females); they also appear merely to be colour-forms of *diallus*.

Cirrospilus elongatus Bouček

Bouček, 1959, *Acta ent. Mus. Nat. Pragae,* **33** (541): 185.

New to Britain.

England: Oxfordshire, Bald Hill, near Lewknor, 18.vi.1960, one female (Graham).

EULOPHINAE

Diglyphus Walker, 1848

Dr. Askew and Dr. Bouček are preparing a joint revision of this genus; most questions regarding the synonymy have been discussed with them, hence they are not mentioned here.

Diglyphus pachyneurus, sp. n.

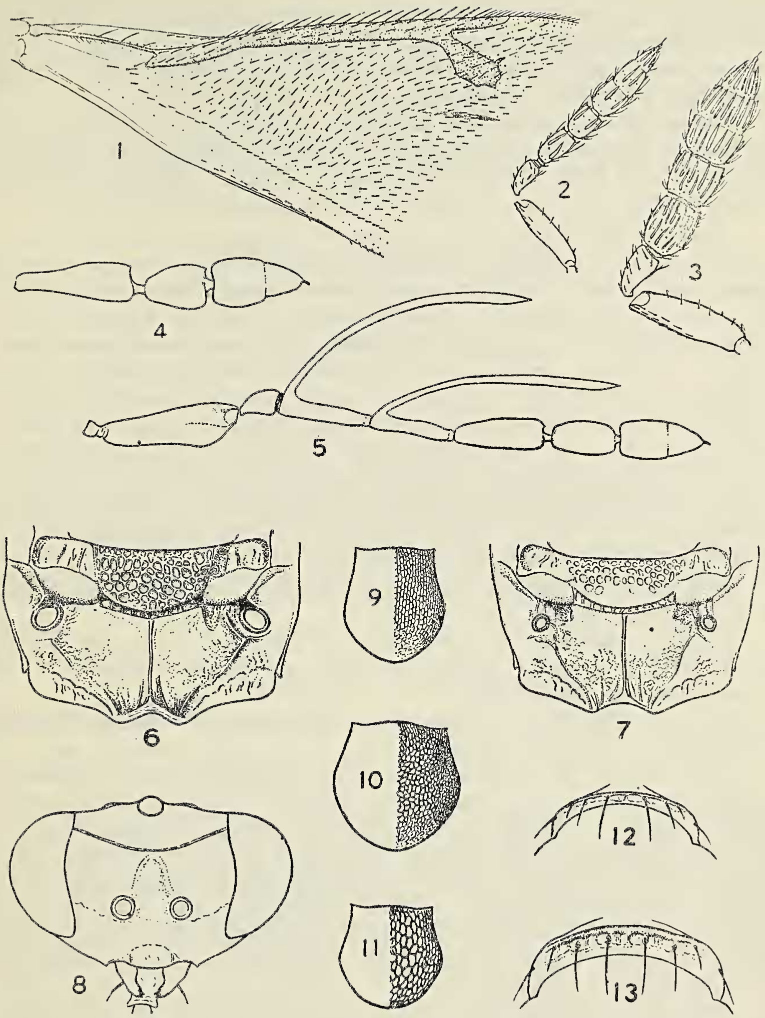
Female.—Body green, with golden flecks in places. Antennae black, scape and pedicellus with a metallic gloss; radicula and extreme base of scape sometimes whitish. Coxae, trochanters, and about the proximal two-thirds of all the femora, metallic like the body; trochantelli, distal third of all femora, all the tibiae, and the tarsi except their fourth segment, white or cream; fourth tarsal segment blackish. The fore tibiae sometimes have a fuscous stripe externally, whilst in the English females the hind tibiae have a narrow subbasal fuscous ring. Tegulae metallic. Wings hyaline; venation flavous. Length 1·5-1·8 mm.

In general facies this species much resembles *poppoea* Walker and *chabrias* (Walker).

Head slightly shiny, extremely finely alutaceous; scrobes polished.

Antennae (fig. 3): scape slightly shorter than an eye; combined length of pedicellus and flagellum slightly greater than the breadth of the mesoscutum; pedicellus (in profile) about 1·6 times as long as broad, practically as long as the first funicular segment; funicle stout (about 1·5 times as thick as the pedicellus), its segments of about equal breadth, the first slightly elongate, the second quadrate; clava (including its terminal spine) fully as long as the funicle, about 2·25 times as long as broad; sensilla numerous, in two rows on the funicular segments, single-rowed on the claval segments.

Thorax 1·8-1·9 times as long as broad. Mesoscutum about as long as broad, only slightly shiny, extremely finely reticulate, the sculpture slightly raised above the general surface; notauli distinct to half way across the sclerite, thence often faintly traceable to its hind margin. Scutellum practically circular, slightly more shiny and more finely reticulate than the mesoscutum, the sculpture hardly raised above the surface; the area enclosed by the submedian grooved lines is about twice as long as broad; distance between the submedian lines about 1·5 times that between one of them and a sublateral line. Axillae sculptured like the scutellum. Dorsellum polished, with traces of weak alutaceous sculpture. Propodeum rather more shiny than the scutellum, with some very fine and weak alutaceous sculpture, especially anteriorly. Forewing about 2·4 times as long as broad; basal cell open below, basal vein pilose; speculum broad, extending to beneath the proximal part of the marginal vein, closed below; cubital vein not strongly sinuate upwards where it joins the basal vein; underside of costal cell with a complete row of hairs, its



Figs. 1-13.—1, *Diglyphus pachyneurus* sp. n., ♂, forewing; 2, the same, ♂ antenna; 3, the same, ♀ antenna; 4, *Dicladocerus westwoodii* Westw., ♂ antenna (distal part); 5, *D. euryalus* (Hal.), ♂ antenna; 6, *D. westwoodii* Westw., ♀, metanotum and propodeum; 7, *D. aeneiscapus* (Thoms.), ♀, metanotum and propodeum; 8, *Chrysocharis* (*Kratochviliana*) *illustris* sp. n., ♂, head; 9, *Ch.* (*K.*) *submutica* sp. n., ♀, scutellum; 10, *Ch.* (*K.*) *nephereus* (Walk.), ♀, scutellum; 11, *Ch.* (*K.*) *pentheus* (Walk.), ♀, scutellum; 12, the same, ♀, pronotum; 13, *Ch.* (*K.*) *collaris* sp. n., ♀, pronotum.

upperside with a row of 6-8 hairs in the distal third; marginal vein only moderately thick, 2·7-3·3 times the length of the stigmal vein; postmarginal vein approximately equal in length to the stigmal vein; stigma rather large, oblong-rhomboidal; disc of wing fairly thickly pilose. Marginal vein of hindwing normal.

Gaster ovate, about as long as, or hardly longer than, the thorax, as broad as the latter, 1·8-1·9 times as long as broad, its apex pointed (the sides converging to form a slightly acute, or a right, angle); ovipositor sheaths hardly exserted.

Male.—Differs from the female as follows: Antenna (fig. 2) with combined length of pedicellus and flagellum hardly greater than the breadth of the mesoscutum; scape about 3·5 times as long as broad; pedicellus nearly twice as long as broad; funicle slender, hardly stouter than the pedicellus; first funicular segment about 1·6 times, second 1·2-1·3 times, as long as broad; clava slightly broader and distinctly longer than the funicle, rather more than three times as long as broad; sensilla of funicle sparse. Forewing (fig. 1): parastigma and marginal vein considerably thickened, postmarginal vein thick, stigma very large. Marginal vein of hindwing conspicuously thickened. Venation fulvo-testaceous. In one male the basal cell of the forewing is closed below distally. Gaster obtuse apically.

England, Lancashire South, Freshfield, 3.vi.1959, one female, 8.ix.1960, one female.

Sweden, Skåne, Falsterbo, 27.vii.1959, one male, one female, 8.viii.1959, one male (the holotype), one female (Graham). All were taken on sand-dunes.

Type in the Hope Department, University Museum, Oxford; paratypes in my own collection.

The female of *pachyneurus* differs from that of *crassinervis* Erdös in having the postmarginal vein of the forewing approximately equal in length to the stigmal vein (in *crassinervis* it is at least slightly longer than the stigmal vein); the basal cell is open below (closed in about the distal half in *crassinervis*); the scutellum is rather more weakly sculptured and slightly more shiny; and the tibiae are white (or at most the hind tibiae have a dark subbasal ring), whereas in *crassinervis* all the tibiae are broadly black-banded.

The male differs from that of *crassinervis* in its shorter flagellum (in *crassinervis* the combined length of the pedicellus and flagellum is somewhat greater than the breadth of the mesoscutum), which is slightly clavate (in *crassinervis* hardly so), the funicular segments are relatively shorter (in *crassinervis* the first is nearly or quite twice as long as broad); the postmarginal vein is approximately equal in length to the stigmal vein, whereas in *crassinervis* it is at least slightly longer; the tibiae are white (in *crassinervis* broadly banded with black).

D. pachyneurus differs from *poppoea* Walker and *chabrias* (Walker), in both sexes, by having the postmarginal vein shorter (it is at least slightly longer than the stigmal vein in the other two species); the tibiae white or with a dark subbasal ring on the hind tibiae only, whereas in *poppoea* and *chabrias* the tibiae are broadly dark-banded medially, sometimes mainly dark; whilst the scutellum is rather more weakly sculptured and hence slightly more shiny. The males of *poppoea* and *chabrias* also differ in having the marginal vein of both fore and hindwings not thickened, whilst the flagellum is much stouter than the pedicellus and is cylindrical.

Diglyphus pusztensis (Erdös)

Cycloscapus pusztensis Erdös, 1951, *Acta biol. Acad. Sci. hung.*, **2** (1-3): 180, 181 (♀ nec ♂).

Diglyphus tibiscanus Erdös, 1958, *Acta zool. Acad. Sci. hung.*, **3** (3-4): 211, ♀, syn. n.

Diglyphus fulvipes Erdös, 1961, *Ann. hist.-nat. Mus. Nat. hung., pars zoologica,* **53**: 474, ♂, syn. n.

In 1959 (*Trans. Soc. Brit. Ent.,* **13** (10): 178) I recorded this species as new to Britain under the name *tibiscanus* Erdös. Later I recognized that *D. fulvipes* Erdös must be the male of it a conclusion which my examination of the type has confirmed. Bouček has since informed me of his opinion that *pusztensis* (Erdös) is the same; the reasons for the change of name will be published by him.

Diglyphus isaea (Walker)

Cirrospilus Isaea Walker, 1838, *Ann. nat. Hist.,* **1**: 386.

Entedon gracilis (Westwood MS.) Goureau, 1851, *Ann. Soc. ent. Fr.* (2), **9**: 159, syn. n.

Colonel Goureau published in 1851 a memoir on leaf-mining Diptera and their parasites. Amongst the latter he reared several species of Chalcidoidea, some of which he sent to Westwood for determination (see Goureau, 1851, *loc. cit.*: 133, footnote). There appears to be no published information regarding the location of Goureau's types. I have seen a few Goureau specimens, probably types, in the Musée d'Histoire Naturelle in Paris. There are also a few Goureau Chalcidoidea in the old Westwood collection at Oxford; there is little doubt that these are the material, or part of the material, sent by Goureau to Westwood, so that they must be syntypes.

One of these specimens, a female, may be taken as the type of *Entedon gracilis* Goureau. It is gummed on a card and bears a label in Westwood's handwriting, "In mined leaves of laiteron. paras[ite] of *Phytomyza lateralis* Mcq.".

Dicladocerus Westwood

In 1959 (*Trans. Soc. Brit. Ent.,* **13** (10): 180) I discussed briefly the problem of speciation in this genus. Shortly afterwards Boucek (1959, *Acta ent. Mus. Nat. Pragae,* **33** (540): 145-6) contributed some useful information and suggestions relating to this problem. In spite of this there still remain some questions to be answered. The following notes are being published in the hope that they may add a little to our knowledge.

Dicladocerus westwoodii Westwood

Eulophus westwoodii Stephens, 1829, *Syst. Cat. Brit. Ins.*: 397 [nom. nud.].

Dicladocerus westwoodii Westwood, 1832, *Phil. Mag.* (3), **1**: 128.

Eulophus Aepytus Walker, 1839, *Mon. Chalciditum,* **1**: 159 syn. n.

Eulophus Battis Walker, 1839, *loc. cit.*: 162.

Diglyphis rugifrons Thomson, 1878, *Hym. Scand.*, **5**: 236.

Dicladocerus westwoodii: syntypes, 4 males in Westwood's collection. Lectotype: the first of the series, mounted on a rectangular card and with two labels: (1) a white one inscribed "Cb. [Coombe] Apl. 26/28 Whitethorn"; (2) a pink one marked "Westwoodii Steph.". The writing on both labels is Westwood's. The lectotype is a dark specimen (the thorax mainly coppery and violet, the scape dark, the legs very dark); the propodeal spiracles are relatively large (much as in *battis,* see below).

Eulophus aepytus: one female stands under this name in Walker's collection (British Museum (Nat. Hist.)) and is designated lectotype. It has the head and thorax green, the femora mainly dark, the tibiae yellow with about their distal half dark, and the scape dark. Except for its dark scape and infuscated tibiae it resembles *battis.*

Eulophus battis: syntypes, two females in the British Museum (Nat. Hist.); one has been chosen and labelled as lectotype. Both are identical and have bright green body, extensively pale legs (the tibiae wholly yellow), and partly yellow scape. The dorsellum is entirely reticulate, about as strongly so as the scutellum; the propodeal spiracles are large and very close to the hind margin of the metanotum.

Diglyphis rugifrons: 9 syntypes in Thomson's collection (Lund). Lectotype, a female bearing two labels reading "Sm" [Småland] and "Bhn" [Boheman]; it has a similar coloration and structure to that of *battis.*

Bouček (1959, *Acta ent. Mus. Nat. Pragae,* **33** (540): 146, when discussing the variation of *westwoodii,* remarks that early spring imagines emerging from overwintering material are usually dark-coloured, with tibiae wholly fuscous or at least apically infuscated, while the summer specimens are more brightly coloured, females often having the tibiae wholly yellow. He concludes that in *westwoodii* a seasonal dichroism perhaps occurs analogous to that already known in certain species of *Eulophus* and *Sympiesis.* Bouček's conclusions were based on Central European material, which may now be discussed.

1. "Dark spring form" (=*westwoodii* s. str.). Dark forms of the female taken in southern England in early May clearly correspond to the dark male form represented by Westwood's type of *westwoodii,* taken in late April. They have dark or mainly dark scape and heavily infuscated tibiae, whilst the head and thorax tend towards olive green or are partly bronze. They also show the following structural characteristics: the propodeal spiracles are relatively large and lie close to the hind margin of the metanotum (see fig. 6); the costal cell of the forewing tends to be relatively broad (averaging about 7·5 times as long as broad), whilst the complete row of hairs on its underside is relatively close to the submarginal vein in the basal half of the cell, though in the distal half it approaches the costal margin; the dorsellum is usually wholly reticulate, though the sculpture is sometimes weak posteriorly.

Males show the characters noted above (the dorsellum is relatively more weakly sculptured). In addition, their antennae (fig. 4) have the last funicular segment distinctly expanded distally, about 1·25-1·65 times as long as broad.

This darker form seems to be the predominant one in southern England from April until early July.

2. "Pale summer form" (= *battis* Walk., *rugifrons* Thoms.). The females of this form have the scape ± yellow, the tibiae not or hardly infuscate, and the body usually bright green. They have the structural characters of the "dark spring form" (notably the large propodeal spiracles, fig. 6) except that the dorsellum tends to be more strongly, and wholly, reticulate (as strongly as the scutellum).

This pale form is frequent from early July until October. There is however, no sharp division between the dark and pale forms; the form *aepytus* Walker is more or less intermediate.

I have no proof that the dark and pale forms actually represent spring and summer generations of the same species, but the structural characters shared by them suggest this.

Dicladocerus euryalus (Haliday)

Eulophus Euryalus Haliday, 1884, *Trans. ent. Soc. Lond.,* **3**: 301 [♂].

Dicladocerus euryalus (Haliday), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 180.

?*Diglyphis aeneiscapus* Thomson, 1878, *Hym. Scand.,* **5**: 236, ♀.

Eulophus euryalus Haliday: syntypes in the British Museum (Nat. Hist.) and in the Hope Department, Oxford.

There are apparently no specimens of *euryalus* now in Haliday's own collection. However, the following Haliday specimens have been located and are clearly syntypes: two males in the British Museum (Nat. Hist.), and two more in Westwood's collection at Oxford. All of them are labelled as *euryalus.* They are very similar, which makes it hard to decide which to take as type. However, I have selected one of the males in the British Museum as lectotype: it is mounted upon a lozenge-shaped card which is fixed to a card-point, and bears two labels, (1) a bluish one inscribed "63 58", (2) a green one upon which is written in Haliday's handwriting "Eulophus Dicladoc euryalus".

These syntypes are clearly conspecific and represent a form which is recognizably distinct from the males of *westwoodii* s.str. They have the head and thorax bright or golden green; the gaster has a large yellowish translucent spot; the scape is yellow, darkened at the tip only; the legs, apart from the coxae, tips of the tarsi, and the hind femora more or less, are bright yellow. Structurally they differ from males of *westwoodii* as follows: the propodeal spiracles are smaller and farther from the hind margin of the metanotum (as in fig. 7); the dorsellum is smooth or has at most very obsolescent sculpture; the antennae (fig. 5) have their last funicular segment less expanded distally (sometimes nearly cylindrical) and rather more elongate (1·8-1·95 times as long as broad), whilst the penultimate funicular segment is rather less expanded distally; the costal cell of the forewing is rather narrower, whilst the complete row of hairs on its underside does not approach so closely to the submarginal vein in the basal half of the cell.

I have seen no other specimens besides the syntypes.

Diglyphis aeneiscapus Thomson: syntypes, 7 specimens in Thomson's collection (Lund); lectotype, a female labelled "Sm" [Småland] and "Bhn" [Boheman].

The lectotype has the head and thorax dark olive greenish, the scape and femora dark, and the tibiae infuscate. It has the propodeal spiracles (fig. 7) small, as in *euryalus*; the dorsellum is ± smooth posteriorly; the costal cell of the forewing is relatively narrower than in *westwoodii,* whilst the complete line of hairs on its underside does not approach closely to the submarginal vein in the basal half of the cell.

Some females in British collections agree in structure with the lectotype of *aeneiscapus.* They have the small propodeal spiracles, the partly smooth dorsellum, and the relatively narrow costal cell (8-9·2 times as long as broad in those measured) with the course of the underside row of hairs the same (sometimes there is a second complete row of hairs below the first). The scape and legs are dark in all these specimens; the head and thorax, however, vary from bronze to green. These specimens are as follows:

Scotland, East Inverness, Aviemore, 20.v.1952, one female (R. B. Benson); West Inverness, Isle of Rhum, Kinloch, 29.viii.1961, one female (Graham).

Hope-Westwood Coll. (Oxford), unlocalized, though probably British, one female (green form).

Haliday Coll.; unlocalized, but either British or Irish: two females (Nos. 889, 890) labelled "larch"; one female labelled (No. 894) "biramis"; one female (No. 893) unlabelled (green form).

The question which now has to be answered is, whether *aeneiscapus* (Thomson) is the female of *euryalus* (Haliday). The similarity in certain structural features (small propodeal spiracles, etc.) might suggest that such is the case. On the other hand, the great disparity in colour raises a doubt.

Only when the two forms are obtained by breeding can one hope to answer this question.

Pnigalio Schrank, 1802

Pnigalio nemati (Westwood)

Eulophus nemati Westwood, 1838, *Mag. nat. Hist.,* **2** (new series): 392; 1840, *Introd. mod. classific. Ins.,* **2**: 106, 162, 163; fig. 77, 21-23.

Eulophus Tischbeini Ratzeburg, 1848, *Ichn. Forstins.,* **2**: 154.

In my Key to British *Pnigalio* (1959, *Trans. Soc. Brit. Ent.,* **10** (13): 181) this species was cited as *tischbeini* Ratzeburg as I was uncertain whether the name *nemati* Westwood had been validated.

In a drawer which contains some Westwood Eulophidae, two specimens (♂ and ♀) stand under his manuscript label *"Eulophus nemati Westw."* However, they bear small blue labels which indicate that they originated from Haworth, so they cannot be types.

Another drawer, in which are placed the types of most of the other Westwood Eulophidae, contains a series of 20 males and 30 females (with fragments of two others) which I consider as syntypes of *nemati;* there are also some pupae and pupa-cases of the parasite. Most of the specimens are mounted in groups upon large serrate cards (the points of the serrations bearing the specimens), whilst a few are separately card-pointed. The first card bears 2 males and 5 females; one of the females is now designated lectotype and has been marked with a red triangle on the card.

Amongst Westwood's MSS. there is a beautiful water-colour plate illustrating the life history of *Eulophus nemati* and its sawfly host (the latter clearly the species now known as *Pontania proxima* Lep.). The plate was exhibited at the meeting of the Entomological Society on 4th June 1838, but was never published.

The types of *tischbeini* Ratzeburg are presumably lost.

In the female of *nemati* the fourth large flagellar segment is closely united with the following one, so that the antenna should be described as having 3 funicular segments and a 3-segmented clava. In my Key to Eulophine genera (1959, *Trans. Soc. Brit. Ent.,* **13** (10): 174) couplet 22 (23) I stated that *Pnigalio* has "female funicle 4-, clava 2-segmented;" the words "except in *P. nemati,* in which they are both 3-segmented" should be added.

Pnigalio soemius (Walker)

Eulophus Soemius Walker, 1839, *Mon. Chalciditum,* **1**: 170.

?*Eulophus Meriones* Walker, 1839, *loc. cit.*: 171.

Eulophus Prothenor Walker, 1839, *loc. cit.*: 180, ♀, syn. n.

Eulophus punctiscuta Thomson, 1878, *Hym. Scan.,* **5**: 228, syn. n.

Eulophus flavipes Erdös, 1954, *Ann. hist.-nat. Mus. Nat. hung.* (series nova), **5**: 326, 327, syn. n.

Eulophus nigroaeneus Erdös, 1954, *ibid.*: 326, 329, syn. n.

Eulophus rotundiventris Erdös, 1954, *ibid.*: 326, 330, syn. n.

Pnigalio soemius (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 181 [*"soemias"* lapsu calami].

P. soemius, as I understand the species, may be known by the following combination of characters in the female:

Forewing speculum very narrow or absent; costal cell of hindwing bare; propodeum with one (or sometimes 2-3) long hairs just outside the base of each plica; gaster relatively short, ovate, 1.4-1.7 times as long as broad, usually shorter than the thorax; metapleuron bare; proximal segments of mid and hind tarsi not whitish, but varying from pale testaceous through reddish to fuscous; hind tibia most often testaceous or reddish, sometimes distally to wholly fuscous (when partly fuscous, the dark colour tends to merge gradually into the paler basal part); dorsum of thorax varying from green through brassy to dull bronze. Length 1·6-2·5 mm. (but specimens above 2·2 mm. are exceptional).

In most specimens the legs are extensively pale. In some the legs (including the coxae) are entirely testaceous, but more often the coxae are ± darkened; the femora are often ± infuscate; usually the tibiae are entirely pale, but in the north of Britain forms with heavy infuscate tibiae are frequent.

Thanks to the kindness of Dr. J. Erdös, I have been able to examine syntypes of his *flavipes* and *nigroaeneus*. I have also seen the holotype of *rotundiventris* Erdös, which I believe to be a large, aberrant female of *soemius*.

I have examined females of *soemius* bred from *Phytomyza milii* Kalt., and from mines of *Phytomyza atricornis* Mg., in leaves of *Sonchus*.

Pnigalio agraules (Walker)

Eulophus Agraules Walker, 1839, *Mon. Chalciditum*, **1**: 166, ♀.

?*Pteromalus cruciatus* Ratzeburg, 1848, *Ichn. Forstins.*, **2**: 202, ♂.

Pnigalio agraules (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 181.

The female of *agraules* shows the following combination of characters.

Forewing speculum broad or very broad; costal cell of hindwing sometimes bare but more often with 1-4 hairs; propodeum with at most one weak hair just outside the base of each plica; gaster relatively short (much as in *soemius*), wholly metallic; metapleuron bare; posterior ocelli rather large, separated from the eyes by a distance only slightly greater than their own major diameter; at least the first segment of the mid tarsi whitish (as a rule the mid and hind tarsi are ± whitish, in pale forms only their fourth segment being dark); hind tibia usually pale with a sharply-contrasting dark band apically, though occasionally wholly dark or wholly pale; dorsum of thorax nearly always with some purplish colour, at least on the mesoscutum. Length 2·2-3·1 mm.

The femora are usually dark with the exception of their tips, though in some specimens they may be reddish-striped beneath. The forewings are usually hyaline, but sometimes have a faint brownish cloud in the middle of the disc.

In Britain *agraules* occurs most frequently in May-June and August-October. I have seen a female bred from *Orchestes fagi* L.

Eulophus populifoliellae Erdös (1954, *Ann. hist.-nat. Mus. Nat. hung.* (series nova), **5**: 326, 327) much resembles *agraules* and might almost be a form of it, though it has the gaster longer than in that species (I have seen a syntype of *populifoliellae*).

Pnigalio pectinicornis (L.)

Ichneumon pectinicornis Linnaeus, 1758, *Syst. Nat.,* **1**: 568.

Eulophus Cromus Walker, 1839, *Mon. Chalciditum,* **1**: 165, ♀, syn. n.

Eulophus Coecilius Walker, 1839, *Mon. Chalciditum,* **1**: 166, syn. n.

Eulophus Faustitas Walker, 1839, *loc. cit.*: 167, ♀, syn. n.

Eulophus Mandron Walker, 1839, *loc. cit.*: 168, ♀, syn. n.

?*Eulophus pilicornis* Ratzeburg, 1844, *Ichn. Forstins.,* **1**: 160.

?*Eulophus subcutaneus* Ratzeburg, 1852, *loc. cit.,* **3**: 202.

Pnigalio coecilius (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10):

Pnigalio pectinicornis (L.), Bouček, 1961, *Trudy moldavsk. Inst. Sadov.,* **7**: 21.

Bouček (1961: 21) has placed *coecilius* (Walker) in synonymy with *pectinicornis* (Linnaeus). I am prepared to accept this as a reasonable interpretation of Linné's species, the types of which have not yet been located.

As thus interpreted, *pectinicornis* may be known by the following combination of characters in the female:

Forewing speculum moderately broad; costal cell of hindwing usually with some hairs (these, however, are weakly attached and get easily rubbed off); propodeum with at most one weak hair just outside the base of each plica; gaster relatively long (1·8-2·5 times as long as broad, as long as or longer than the thorax), often ± reddish beneath at the base; metapleuron usually with some (1-5) hairs; posterior ocelli rather smaller than in *agraules*; colour of tarsi and tibiae as in *agraules*; dorsum of thorax without purplish colour.

The femora are usually reddish with a dark dorsal stripe. The mid and hind tibiae most often have about their distal half blackish, though sometimes they are (especially the hind tibiae) more extensively infuscate; in rare cases they are entirely pale. Very often the forewing is ± tinged with yellowish, sometimes strongly so.

I have taken *pectinicornis* in every month between May and November.

Pnigalio lucumo (Walker)

Eulophus Lucumo Walker, 1839, *Mon. Chalciditum,* **1**: 169, ♀.

Pnigalio lucumo (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 182.

The form to which I have applied the name *lucumo* differs (in the female) from typical *pectinicornis* in having the speculum of the forewing smaller and often ± effaced by scattered hairs on the upperside of the wing, the metapleuron is bare, the legs are on the average darker, whilst the forewing is often greyish-tinged. These characters hold good for a number of specimens, but other females are difficult to place with certainty. It looks as if *pectinicornis* may be variable with respect to these characters and that *lucumo* is a form of it.

Some females from the north of England (Lancashire, Freshfield) which may be referred to *lucumo* are exceptionally dark. They have the thorax bronze-black, or black with a faint bluish to violet tinge. These specimens might be confused with *agraules,* but they have smaller ocelli, narrower and often ± effaced speculum, and a relatively longer gaster.

Pnigalio phragmitis (Erdös)

Eulophus phragmitis Erdös, 1954, *Ann. hist.-nat. Mus. Nat. hung.* (series nova), **5**: 328.

New to Britain and to Sweden:

England, Dorset, Lodmoor, near Weymouth, 13.ix.1962, one female, swept by my wife (Mrs. N. M. Graham) from reeds (*Phragmites communis* Trin.). This female has the fore coxa mainly fuscous, the mid and hind femora mainly infuscate, otherwise it agrees with the original description. However, British specimens of many species tend to be darker than Continental examples.

Sweden, Skåne, Yddingen, 10.viii.1959, one female, swept from a reed-bed in the lake (M. W. R. de V. Graham). This specimen has the colour of the nominotypical form described by Erdös.

Hitherto *phragmitis* had been recorded only from Hungary (4 females) and Poland (1 male).

Pnigalio sp. n.

Pnigalio sp. A. Bouček, 1959, *Acta ent. Mus. Nat. Prague,* **33** (540): 122, 125.

Dr. Bouček intends to describe this species, which he has (1959, *ibid.*) mentioned in his keys to *Sympiesis.*

My records are the following:

England, Berkshire, Wolvercote, 9.ix.1953, one female.

Sweden, Skåne, Lund., 29.vii.1959, two females captured on flowers of *Pastinaca sativa* L. on the embankment of a disused railway.

Sympiesis Förster, 1856

Bouček (1959, *Acta ent. Mus. Nat. Pragae,* **33** (540): 121) has placed *Teleogmus* Förster, 1856, in synonymy with *Sympiesis.* This is undoubtedly the right course; in my paper of 1959 (*Trans. Soc. Brit. Ent.,* **13** (10): 182) I expressed the view that the two were not really distinct.

Sympiesis sericeicornis (Nees)

Eulophus upupaenellae Bouché, 1834, *Naturgesch. der Insecten*: 172.

Eulophus sericeicornis Nees, 1834, *Hym. Ich. affin. Mon.,* **2**: 168.

Eulophus Docilis Walker, 1839, *Mon. Chalciditum,* **1**: 159, ♀, syn. n.

Eulophus Eneugamus Walker, 1839, *loc. cit.*: 160, ♂ ♀.

Eulophus Sithon Walker, 1839, *loc. cit.*: 181, ♂ [recte ♀], syn. n.

Entedon laticornis Ratzeburg, 1848, *Ichn. Forstins.,* **2**: 162.

The types of *sericeicornis* Nees are lost; the generally accepted interpretation of his species is followed here. His description applies well to a colour form of the male with head and thorax coppery.

The types of Walker's species are in the British Museum (Nat. Hist.):—

Eulophus docilis: one female, labelled "Docilis" in Walker's handwriting, now taken as lectotype. It is a form of *sericeicornis* with rather pale legs.

Eulophus eneugamus: five syntypes (2 males, 3 females), all typical *sericeicornis.* No lectotype is selected at present.

Eulophus sithon: one female, labelled "Sithon" in Walker's handwriting. It is a slightly abnormal specimen, the gaster being somewhat distorted and short, with its segments telescoped (hence Walker's supposition that it was a male); the wings appear slightly teneral.

The types of *Entedon laticornis* Ratzeburg are lost, but the description applies well to typical *sericeicornis.*

Bouček (1959, *Acta ent. Mus. nat. Pragae,* **33** (540): 126-128) gives a discussion of the variation of *sericeicornis* in Central Europe. His account of the variation of the male antennae (*ibid.,* and figs. 1-4) is particularly interesting. In Britain I have found males whose antennae correspond to the forms shown in Bouček's figs. 1-3, but so far have not seen any with angular processes on the first three funicular segments as shown in his fig. 4.

In Britain, as on the Continent, the female of *sericeicornis* varies considerably in the colour of the legs; the gaster is somewhat variable in colour, the thorax rather less so. I agree with Bouček that the colour of the legs can hardly be regarded as a specific character.

Bouček also refers (1959: 126) to variation in the structure of the propodeum, which he regards as being within the range of variation of one species, a conclusion with which I also agree.

In the British females which I refer tentatively to *sericeicornis* I have found slight variation in the pilosity of the forewing, of a kind suggesting that a second species might be involved. The characters which seem to distinguish the British forms are summarized in the following key:

1 (2) Forewing: upper surface of costal cell with only 1-3 hairs at the apex; speculum usually open below; basal vein bare or with 1-5 hairs; gaster not or hardly longer than head plus thorax, its dorsal surface entirely or almost entirely green. (Thorax bright green, golden-green or blue-green; legs coloured as in f. *docilis*. Flagellum, and funicular segments, apparently rather shorter than in the other forms) .... forma A (or sp. ?)

2 (1) Forewing: upper surface of costal cell with 4-13 hairs at apex; speculum closed below; basal vein with 4-8 hairs; gaster slightly to distinctly longer than head plus thorax, its dorsal surface ± (at least the two apical tergites) bronze- or purplish-black. Flagellum, and funicular segments, apparently rather longer.

3 (4) Mid tibia wholly pale, or partly fuscous (either a postmedian band, or a stripe on the inner aspect); hind tibia sometimes extensively pale (occasionally only the distal quarter is dark); third segment of mid tarsi often, of hind tarsi sometimes, whitish; head and thorax tending towards bright green .... f. *docilis* (Walk.)

4 (3) Mid and hind tibiae black, with at most a narrow pale ring at the base; mid and hind tarsi with only their first and second segments (on hind tarsi sometimes only the first segment) whitish; thorax varying from blue-black to bright green or blue. .... *sericeicornis* s.str.

These forms do not appear to be seasonal. There seems little doubt that *docilis* is merely a colour form of *sericeicornis*. "Forma A", however, appears rather more distinct; it might even prove to be a good species (Dr. Erdös believes this to be the case). Dr. Erdös has shown me a male and a female of the same form from Hungary, which he bred from *Lithocolletis comparella* Z. on leaves of *Populus alba* L. This male has the legs distinctly stouter than in any of the *sericeicornis* males that I have seen (the mid tibia, for example, is only about 9 times as long as broad), whilst the flagellum is rather shorter and broader and the proportions of the funicular segments are slightly different. The British material of "forma A" is as follows:

England: Berkshire, Cothill, one female bred 11.ii.1925 from *Lithocolletis* blotch on alder (*Alnus* sp.) by E. G. R. Waters; Oxfordshire, Oxford, 26.vii.1955, one female taken on foliage of a poplar tree (*Populus* sp., possibly × *canadensis* Moench) in my garden; Marston Ferry, 21.ix.1960, two females, 23.ix.1960, two females, all beaten from foliage of *Salix purpurea* L. (Graham).

Sympiesis gregori Bouček

Bouček, 1959, *Acta ent. Mus. Nat. Pragae,* **33** (540): 131.

New to Britain.

The females so far taken in England may be grouped in two rather distinct colour forms. When writing my paper on British Eulophidae in 1958, I had examined only one female of each form and did not wish to describe the species from so little material. Since then it has been admirably described by Bouček.

The two colour forms of the female are as follows:

Pale form.—Thorax bright or golden green. Legs yellowish, only the basal half of the fore coxae sometimes, and the mid and hind coxae, metallic; hind femora ± infuscate dorsally, rarely the mid femora slightly so. Forewing with a short, not very distinct fuscous streak proceeding from the stigma (sometimes this streak is absent); sometimes there is also a weak infumate cloud immediately beyond the speculum, but it does not form a clearly delimited spot.

Dark form.—Thorax dull bronze to coppery bronze, or partly olive. All the femora with a broad fuscous dorsal stripe; hind tibiae with their distal third to half fuscous or black (in one female they are also slightly dusky at the base); mid tibiae sometimes slightly infuscate in their distal quarter to one-third. Forewing with two fuscous blotches, the first being a well-defined blotch situated immediately beyond the speculum, the second a lunate mark which extends from the stigma halfway across the wing or slightly more.

Records for the two forms are the following:

Pale form.—Berkshire, Wytham, 28.vii.1957, one female (Graham). Lancashire South, Freshfield, 31.v.1959, many males and females swept in dune-slacks (Graham).

Dark form.—Berkshire, Bagley Wood, 4.x.1957, one female; Wytham, 9.vii.1959, one female. Buckinghamshire, Hell Coppice, near Oakley, 27.viii.1959, one female (Graham). Surrey, Coombe, 14.x.1826, one female taken on oak (J. O. Westwood coll.).

Dahlbominus Hincks, 1945

Dahlbominus fuscipennis (Zetterstedt)

In my paper on British Eulophidae (Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 185) I stated that *Eulophus fuliginosus* Nees was an earlier name for *fuscipennis* Zetterstedt. This view is quite incorrect and I much regret any inconvenience caused to other workers by this mistake. The synonymy was proposed after examination of a Neesian specimen which I wrongly supposed to be the type. Since then I have found a coloured drawing of the holotype of *Eulophus fuliginosus,* made by Westwood in 1842 when he had the whole collection of Nees on loan; this shows that the species is something quite different from *fuscipennis.*

Necremnus Thomson

Necremnus tidius (Walker)

Eulophus Tidius Walker, 1839, *Mon. Chalciditum,* **1**: 146, ♂.

Entedon Cyrinus Goureau, 1851, *Ann. Soc. ent. Fr.* (2), **9**: 143, pl. 5, no. 5, figs. 5-7, syn. n.

In Westwood's collection (Oxford) there is a Goureau specimen gummed on a card and labelled in Westwood's handwriting "In mined leaves of Ranoncule acre. Paras[ite] of *Phytomyza flava* Meig." This agrees with the data given by Goureau for *Entedon cyrinus* and the specimen [a female *Necremnus tidius*] is evidently a syntype.

Hemiptarsenus Westwood

Hemiptarsenus dropion (Walker)

Eulophus Dropion Walker, 1839, *Mon. Chalciditum,* **1**: 150, ♂.

Entedon Lepidus Goureau, 1851, *Ann. Soc. ent.* Fr. (2), **9**: 141, pl. 5, no. 4, figs. 9-12, syn. n.

Entedon Gratus Goureau, 1851, *ibid.,* 143, pl. 5, no. 5, figs. 5-7, syn. n.

Westwood's collection contains a syntype of *Entedon gratus* Goureau. It is gummed on a card and bears two labels reading "93" and "Entedon gratus parasite de la mineuse sur plantain. 11-7 bus 1847". It is a female of *Hemiptarsenus dropion.* No types of *Entedon lepidus* Goureau have been found but the description leaves little doubt of its identity.

ENTEDONTINAE

Entedon Dalman

Since other workers have indicated to me their intention of revising this genus, my remarks here are confined to the presentation of some new records and a mention of some points which may be useful.

A character apparently not used before in the taxonomy of this genus, and one which I believe may be of some importance, is the ratio of the breadth of the oral fossa ("mouth-opening") to the malar space. Interspecifically this ratio shows wide variation (from about 1·6 in the male of *abdera* Walker, to about 4·5 in the female of *cyanellus* Dalman). Intraspecifically the ratio appears to be fairly constant and should be useful in some cases for distinguishing closely allied species. Where bred specimens of a given species have been available, I have made measurements which indicate that the above ratio is slightly less (i.e., the malar space is slightly longer) in the male than in the female.

Species-group of *pharnus* Walker (=*Nephelentedon* Erdös, *ex parte*).

The term "*pharnus*-group" is here used provisionally for certain species which have the following combination of characters in the female:

No impressed lines extending from the upper end of the antennal scrobes to the eyes; POL less than twice OOL; posterior ocelli separated by almost or quite twice their own major diameter from the eyes; forewing usually with a discal cloud.

Entedon pharnus Walker

Entedon Pharnus Walker, 1839, *Mon. Chalciditum,* **1**: 102, ♀: Erdös, 1951, *Acta biol. Acad. Sci. hung.*, **2** (1-3): 212.

The question of the identity of *pharnus* needs further study. The two female syntypes in the British Museum (Nat. Hist.) represent two different species. Haliday's collection (Dublin) contains a female (No. 1154) labelled *"pharnus"*, but it is probably a Haliday specimen and therefore not a syntype.

Of the two undoubted syntypes, both have the head (in dorsal view) moderately transverse, 2·3-2·35 times as broad as long, and have rather long gasters (1·8-1·9 times as long as broad). In one of them the breadth of the oral fossa is hardly twice the malar space, whilst the anterior margin of the clypeus is slightly produced; in the other the oral fossa is about 2·3 times the malar space, and the anterior margin of the clypeus is hardly produced. It seems best to leave the designation of a lectotype pending the revision of the Walker types of Eulophidae proposed by Mr. Kerrich.

I have not seen any recently-caught material which agrees exactly with either syntype of *pharnus*. Two females from Ireland (Co. East Donegal, Isle of Doagh, 21.vi.1955, A. W. Stelfox) come very near to one of the syntypes, but differ in small details (slightly shorter gaster, differently formed clypeus, etc.).

Entedon fufius Walker

Entedon Fufius Walker, 1846, *Ann. Mag. nat. Hist.*, **17**: 182, ♀.

One female, labelled *"Fufius"* in Walker's handwriting, stands under this name in the British Museum (Nat. Hist.), and is taken as lectotype.

The female of *fufius* differs from that of *pharnus* in its very broad oral fossa (about 3·5 times the malar space) and shorter gaster (about 1·5 times as long as broad).

New record: — England, Lancashire South, Freshfield, 24.vi.1962, one female swept in a dune slack (Graham).

Entedon philiscus Walker

Entedon Philiscus Walker, 1851, *Ann. Mag. nat. Hist.* (2), **7**: 216, ♀.

Encyrtus [sic] *philiscus* (Walker) Morley, 1910, *Cat. Brit. Hym. fam. Chalcididae*: 24.

Two female syntypes stand under the name *Entedon philiscus* Walker in the Dale collection at Oxford. Both bear labels written with red ink in the handwriting of J. C. Dale. The first specimen has a label "109"; the second has two labels which read "110" and "Philiscus" respectively. Although both agree well enough with the description, the second is taken as lectotype. There is no specimen in the collection answering to the description of Walker's var. *β*.

The female of *philiscus* has the head (in dorsal view) about 2·45 times as broad as long; the breadth of the oral fossa is 2·55-2·7 times the malar space; the gaster is relatively short (1·15-1·3 times as long as broad); the median area of the propodeum is lightly reticulate; the mid and hind tarsi have their first segment testaceous, the second brownish.

New record: England, Berkshire, Wytham, 2.vi.1961, one female, swept on calcareous grassland (Graham). This specimen has the mid and hind tarsi wholly fuscous, but appears to agree completely in structure with the types of *philiscus*.

Morley (1910) omitted the name *philiscus* from the British list of *Entedon,* but (1910: 24) included it in *Encyrtus*! This mistake was copied by Kloet and Hincks (1945, *A Check List of British Insects*: 288).

The following species has the characters of the group of *pharnus,* except that the posterior ocelli are more widely separated (POL about twice OOL):

Entedon sp.

?*Entedon longulus* Erdös, 1944, *Species hung. generis Entedon Dalm.*: 24.

England: Oxfordshire, Otmoor, a few females swept in marshy spots on 12.vi.1956 and 5.vi.1958 (Graham).

Wales: Monmouthshire, St. Brides Wentlloog, males and females reared May 1962 from *Apion* sp. in stems of *Rumex* (M. F. Claridge).

This must be very close to *longulus* Erdös and may actually be that species; but it does not agree perfectly with the description, hence I am not making a definite identification.

Species-group of *cyanellus* Dalman
(=*Entedon* Dalman, s.str.)

Either no impressed lines extending from the upper end of the antennal scrobes to the eyes, or at most very short ones; POL twice or more than twice OOL; posterior ocelli separated by less than twice their own major diameter from the eyes; oral fossa large, its breadth 3-4·5 times the malar space; anterior margin of clypeus ± distinctly produced; forewing speculum open below and basal vein normally bare.

Entedon pallicrus Erdös

Erdös, 1944, *Species hungaricae generis Entedon Dalm.*: 52, fig. 52, a-f.

New to Britain.

England, Buckinghamshire, just north-east of Charndon, 19.viii.1962, several males and females swept from plants of *Melilotus altissima* Thuill. in an old quarry situated in the triangle enclosed by two roads and the railway (Graham).

There is also a female without data from Walker's collection, placed under the name *Entedon zanara* Walker, in the British Museum (Nat. Hist.); but it is not a syntype of that species, as Walker described the male only.

Entedon metatarsalis Thomson

Thomson, 1878, *Hym. Scand.*, **5**: 245.

New to Britain.

Scotland, Mid Perth, Kenmore, 19.vii.1954, one female (Graham).

One female only stands in Thomson's collection under the name *metatarsalis*; it has been remounted, and labelled as lectotype, by Dr. A. Jansson. I compared my Scottish specimen with the type, from which it appears to differ only in being slightly larger with rather less coarse sculpture on the mesoscutum and scutellum.

Entedon subovatus Thomson

Thomson, 1878, *Hym. Scand.*, **5**: 243.

New to Britain.

England, Berkshire, Wytham, 29.vi.1958, several females swept from calcareous grassland (Graham).

Thomson's series of *subovatus* comprises four females and three males. The females appear to be conspecific; one of them, labelled "Sc." [Skåne] and "Bhn" [Boheman] is taken as lectotype. The English specimens differ from it only in small details of size and sculpture.

The true *cyanellus* Dalman (type-species of the genus), which is not known from Britain, would be best placed here. It comes very near to *subimpressus* Thomson, but has the head and thorax blue, the frons more coarsely sculptured. It is hoped to give later a redescription of the lectotype female of *cyanellus* in Dalman's collection.

Entedon parvicalcar Thomson

Thomson, 1878, *Hym. Scand.,* **5**: 244.

New to Britain.

England: Lancashire South, Freshfield, 3.vi.1959 and 4.vi.1959, two males and one female (Graham).

Thomson's syntypic series contains several specimens; one of them, a female labelled "Ö" [Öland] has been marked as lectotype by Dr. A. Jansson. The English female recorded above differs from it only in having the mid and hind tibiae rather less broadly white apically, but this might be expected in British material. In many species of *Entedon* the colour of the legs, particularly that of the tibiae, is remarkably constant, but in others there is slight variation.

Species-group of *sparetus* Walker

Characters of *cyanellus*-group, except as follows:

Oral fossa small (its breadth 1·75-2·1 times the malar space); anterior margin of clypeus not distinctly produced but truncate or virtually so. The speculum of the forewing is normally open below (but closed in its distal half in *abdera* Walker). The latter character distinguishes the females of this group from those of the *diotimus*-group, in which the speculum is closed or practically closed below.

Entedon ergias Walker

Entedon Busiris Walker, 1839, *Mon. Chalciditum,* **1**: 99, ♂, ♀, syn. n.

Entedon Merion Walker, 1839, *loc. cit.*: 100, ♀.

Entedon Ergias Walker, 1839, *loc. cit.*: 100, ♀.

?*Elachestus leucogramma* Ratzeburg, 1844, *Ichn. Forstins.,* **1**: 170.

Entedon busiris Walker: the British Museum (Nat. Hist.) collection contains 4 Walker specimens. One female, represented by antennae and legs only, stands in the British portion of the collection. A series of two females and one male stand in the foreign collection; the male does not agree with the description and belongs to a different species from the females (which are *ergias*). A female bearing a circular label with serial number 38.4.5.230 is chosen as lectotype although agreement with the description is rather poor. The lectotype has been misplaced for its serial number shows it to be of British origin.

There are two syntypes of *merion* in the British Museum (Nat. Hist.), apparently conspecific.

E. ergias Walker: one female syntype in the British Museum (Nat. Hist.); also one female (probably a Walker specimen) in the Haliday collection (No. 1116) labelled "*ergias*" and indicated as being British.

E. ergias may be known from the other British species of *Entedon* by the unusual position of the posterior ocelli. Each ocellus is about equidistant (separated by nearly its own major diameter) from the orbit of the eye and from the edge of the occiput. In the other species each posterior ocellus is distinctly (often much) nearer to the occipital edge than to the eye, and sometimes even touches the occiput. Moreover, the mesoscutum in *ergias* has unusually distinct notauli; in most specimens these are complete (though superficial).

In England the species is not uncommon; most of my specimens have been taken from foliage of *Salix fragilis* L.

Possibly *Entedon* (= *Elachestus*) *leucogramma* (Ratzeburg) may be the same as *ergias*. However, Thomson (1878) did not recognize *leucogramma* and the latter has not been properly redescribed, although it has been mentioned several times in the literature. Erdös (1944, *Species hungaricae generis Entedon Dalm.*: 43) simply quotes Ratzeburg's original description, although he gives some figures illustrating his own interpretation of the species. His figure 43e shows the female head in dorsal view, and this agrees well enough with the head of *ergias*. But his figures of the male and female antennae, and of the male hind leg, leave some doubt. My female specimens of *ergias* have the first funicular segment of the antenna longer than that shown in Erdös' figure (43c) of female *leucogramma*. Moreover he describes and figures the hind tibiae of *leucogramma* as having their distal half white; in my specimens of *ergias* they are much less broadly white (the distal quarter or rather more). Of course it is possible that we have to deal with only one species in which the antennal segments, and the colour of the legs, are variable; only further study of material from different countries can settle this question.

Entedon sparetus Walker

Entedon Sparetus Walker, 1839, *Mon. Chalciditum,* **1**: 103.

Entedon cioni Erdös, 1944, *Species hungaricae generis Entedon Dalm.*: 15, 31, figs. 4, 30, 31 (nec Thomson, 1878, *Hym. Scand.,* **5**: 246).

In England this species is not uncommon on chalk downland, dunes, and saltmarsh; on the east coast of Ireland it has been taken in the two latter types of habitat by Mr. Stelfox and me.

Entedon hercyna Walker

Entedon Hercyna Walker, 1839, *Mon. Chalciditum,* **1**: 104.

E. elongatus Thomson, 1878, *Hym. Scand.,* **5**: 246 (nec Ratzeburg, 1844, *Ichn. Forstins.,* **1**: 163).

E. aselli Erdös, 1954, *Ann. hist.-nat. Mus. Nat. hung.* (series nova), **5**: 347 (nom. nov. for *elongatus* Thoms. nec Ratz.).

New records.—England: Berkshire, Wytham, 29.vi.1951, two females; 13.vi.1953, three females (Graham).

Entedon abdera Walker

Entedon Abdera Walker, 1839, *Mon. Chalciditum,* **1**: 98, ♂; Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 188.

E. punctatus Thomson, 1878, *Hym. Scand.,* **5**: 244, ♂, ♀, syn. n.

The male type of *abdera* Walker (in the British Museum (Nat. Hist.) is a Haliday specimen labelled "Abdera" in Walker's handwriting.

There are two specimens, a male and a female, under the name *punctatus* in Thomson's collection. The male bears the wrong locality data and so cannot be the type; it is, however, conspecific with the female. The female type is labelled "Rsiö" [Ringsjön] and "punctulatus [sic] Ths.".

Entedon nigritarsis Erdös (1944, *Species hungaricae generis Entedon Dalm.*: 20) may well be the same as *abdera.*

E. punctatus Erdös (1944, *loc. cit.*: 54) is a different species from that of Thomson.

Entedon lixi Erdös

Entedon lixi Erdös, 1951, *Acta biol. Acad. Sci. hung.,* **2** (1-3): 220, figs. 22.

Entedon busiris var. γ, Walker, 1839, *Mon. Chalciditum,* **1**: 99.

The name *lixi* must be added to the British list (although the species, recorded as *busiris* var. γ, has already been taken in England).

New record:

England: Dorsetshire, near Pimperne, 10.vii.1938, one female (C. D. Day).

Erdös (1951: 221) recorded *lixi* from Hungary as a parasite of *Lixus elongatus* (Goeze) on stems of *Carduus acanthoides* L.

Another female of this species stands in the Dale Collection at Oxford and is labelled "Busiris" in red ink in J. C. Dale's handwriting; it is evidently a syntype because Walker (1839: 99) gives one of the type localities as "Dorsetshire". However, it disagrees with the description of the nominotypical form and fits the description of var. γ.

Species-group of *diotimus* Walker

I apply this name to a small group of species characterized particularly by having the speculum of the forewing closed or nearly closed below by a line of hairs on the cubital vein (and placed on the upper surface of the wing). This character is common to both sexes. Most other western European species known to me have the speculum open below in the female, and frequently so in the male. Other characters common to species of the group *diotimus* are: frons without impressed lines from the upper end of the scrobes to the eyes; oral fossa relatively small, its breadth at most about twice the malar space; anterior margin of clypeus hardly at all produced; fore tibia without a longitudinal pale stripe.

Entedon diotimus Walker

Entedon Mera Walker, 1839, *Mon. Chalciditum,* **1**: 97, *ex parte* [excl. the Lectotype].

Entedon Diotimus Walker, 1839, *loc. cit.*: 101, ♀.

Entedon cyanellus Zetterstedt, 1838, *Ins. lapp.,* **1**: 431; Thomson, 1878, *Hym. Scand.,* **5**: 245; Erdös, 1944, *Species hung. generis Entedon Dalm.*: **57** (nec Dalman, 1820).

Some remarks on *diotimus* seem appropriate because it appears to be the commonest species of the genus in Britain (at all events, the one which occurs most frequently in the field). I have already mentioned (1959, *Trans. Soc. Brit. Ent.,* **13** (10): 189) that the *Entedon cyanellus* of authors is not the same as that of Dalman, a point of importance since *cyanellus* is the type-species of the genus.

E. diotimus Walker may be diagnosed as follows:

Female: breadth of oral fossa 1·7-1·8 times the malar space; eyes separated by hardly more than their own length; antennal pedicellus about twice as long as broad; flagellum subclavate, the first funicular segment hardly 1·5 times as thick as the pedicellus and slightly less broad than the clava; scutellum usually with a slight transverse impression in the middle (occasionally this impression is absent); median area of propodeum weakly sculptured and shiny; mid and hind tarsi ± white (usually segments 1-3, though in very dark forms the first segment alone is whitish).

Male: antennae with 3 funicular segments and a 2-segmented clava.

Species-group of *cioni* Thomson
(= *Dolichentedon* Erdös)

This group is characterized particularly by having a pair of impressed lines on the frons, extending from the upper end of the scrobes to the eyes (or nearly to the eyes). The oral fossa is relatively small (its breadth at most about twice the malar space), whilst (in the species mentioned here) the anterior margin of the clypeus is not produced and is truncate or virtually so.

Entedon methion Walker

Entedon Methion Walker, 1839, *Mon. Chalciditum,* **1**: 105.

?*Eulophus canaliculatus* Förster, 1841, *Beitr. Mon. Pteromalinen Nees*: **42**, figs. 13a-c.

?*E. györfii* Erdös, 1954, *Ann. hist.-nat. Mus. Nat. hung.* (series nova), **5**: 347, fig. 13, b, c.

The following are new records:

England, Lancashire South, Freshfield, 5.ix.1960, one female beaten from foliage of pine (*Pinus sylvestris* L.) on old sand-dune. Sweden, Skåne, Falsterbo, 27.vii.1959, one female swept on dunes near pines.

I have seen two Förster specimens (♂, ♀) of *Eulophus canaliculatus*; they are the same as *methion.*

Erdös' description and figure of *E. györfii* apply well to *methion* except that his figure of the female antenna (fig. 13b) shows the pedicellus as being only about twice as long as broad, whereas that of *methion* is nearly three times as long as broad. Hence I am not sure whether the two species are really the same.

Entedon euphorion Walker

Entedon Euphorion Walker, 1839, *Mon. Chalciditum,* **1**: 105.

E. longicornis Erdös, 1944, *Species hung. generis Entedon Dalm.*: 37, syn. n.

Entedon euphorion: two females which are original material stand under this name; one is the same as *longicornis* Erdös, the second *ulmi* Erdös. Dr. Bouček and I agree that the first specimen should be taken as lectotype. It was compared with the type of *longicornis.*

Entedon ulmi Erdös

Entedon ulmi Erdös, 1954, *Ann. hist.-nat. Mus. Nat. hung.* (series nova), **5**: 348, fig. 13, d, e.

New to Britain.

England: Warwickshire, Waverley Wood, 31.vii.1956 (Graham).

There is a female of *ulmi* in the Haliday collection (No. 1158); it is indicated as British and is probably a Walker specimen.

Entedon albicrus Thomson

Entedon albicrus Thomson, 1878, *Hym. Scand.,* **5**: 247.

? *Entedon Zanara* Walker, 1839, *Mon. Chalciditum,* **1**: 95, ♂.

New record:

England: Berkshire, Wytham, 19.viii.1954, males and females bred from *Cionus* sp. on *Scrophularia* (G. R. Gradwell). These were compared by me with Thomson's types.

E. zanara Walker: there are two male syntypes in the British Museum (Nat. Hist.); they are near to, if not identical with, *albicrus* Thomson.

Entedon ? cionobius Thomson

? *Entedon cionobius* Thomson, 1878, *Hym. Scand.,* **5**: 247.

E. cinereae Erdös, 1961, *Ann. hist.-nat. Mus. Nat. hung.,* 53, *pars zoologica*: 484, ♀.

England: Oxfordshire, Otmoor, 7.viii.1961, one female (Graham).

The name of this species, which is new to Britain, requires confirmation. It is certainly the same as *cinereae* Erdös, the type female of which was kindly lent to me by Dr. Erdös. It may also be the same as *cionobius* Thomson, according to my notes upon the types; but these notes were made some years ago and are not as detailed as I could wish.

Species-group of *punctiscapus* Thomson

Known from the other groups of *Entedon* by the long and sculptured petiole, which is about as long as broad and mainly reticulate; other characters as in the group of *sparetus*.

Entedon punctiscapus Thomson

Thomson, 1878, *Hym. Scand.*, **5**: 247, ♂, ♀.

New to Britain.

England: Oxfordshire, Otmoor, 28.viii.1955, one female; 10.vii.1956, males and females, beaten from foliage of *Salix fragilis* L. (Graham).

The nominotypical form from southern Sweden in Thomson's collection has the apices of the tibiae, and the bases of the tarsi, whitish; whilst the gaster of the male has a translucent subbasal spot. Some of the English specimens agree with the Swedish form; others have the apices of the tibiae hardly paler than the rest, the tarsi are fuscous with their bases at most obscurely paler, whilst the spot on the male gaster is indistinct.

I have some other, apparently undescribed, species of *Entedon* from Britain; these are not being dealt with here.

Pediobius Walker

Some species new to Britain are recorded below. I am not presenting a revised key to the British species, because Dr. Bouček intends soon to publish a key to the Central European species, which will include all or nearly all those found in Britain.

Pediobius crassicornis (Thomson)

Pleurotropis crassicornis Thomson, 1878, *Hym. Scand.*, **5**: 255.

New to Britain.

England: Essex, Hockley Wood, 15.viii.1935, one female (C. D. Day). This specimen agrees with the holotype female in Thomsion's collection.

Pediobius claviger (Thomson)

Pleurotropis claviger Thomson, 1878, *Hym. Scand.*, **5**: 256, ♀.

New to Britain.

England: Buckinghamshire, Salcey Forest, 3.vii.1954, one female (Graham).

There is only one female, from northern Skåne, in Thomson's collection; I have compared my specimen with this.

The species is evidently related to *argon* (Walker) which it closely resembles; the most obvious distinctions lie in the antennae. In the female of *argon* the flagellum is very stout, but not strongly clavate; this is because the funicle proximally is relatively broader (its first segment fully 1·5 times as broad as the pedicellus), whilst the clava is only slightly broader than the third funicular segment. In the female of *claviger,* the flagellum is strongly clavate; the funicle proximally is more slender (its first segment hardly broader than the pedicellus), whilst the clava is about 1·7-1·8 times as broad as the third funicular segment.

Pediobius tetratomus (Thomson)

Pleurotropis tetratomus Thomson, 1878, *Hym. Scand.,* **5**: 257, ♀.
New to Britain.

England: Hampshire South, Brockenhurst, 6.ix.1958, one female (Graham).

The female of this species may easily be distinguished from all the other British species by the four completely separated funicular segments (the others having three or two). I have seen the syntypes in Thomson's collection.

Pediobius albae Erdös

Erdös, 1961, *Ann. hist.-nat. Mus. nat. hung. pars zoologica,* **53**: 485.
New to Britain.

England: Dorsetshire, Chesil Bank, Burton Mere, 17.vi.1954, males and females bred from pupae of *Depressaria nervosa* Haw. (Lep., Oecophoridae) (H. W. Daltry); Lancashire South, Freshfield, 3.vi.1959, two females swept in a dune slack (Graham).

Thanks to Dr. J. Erdös I have been able to compare the above material with paratypes of *albae.* The host was previously unknown.

Pediobius ? cassidae Erdös

? *Pediobius cassidae* Erdös, 1957, *Bull. Soc. ent. Fr.,* **62**: 282, f.4, ♀.

England: Berkshire, Wytham Mead, 2.vii.1960, one female (Graham).

Erdös (1957: 282) describes the female of *cassidae* as having "oculis maximis . . . genis brevissimis". In the above English female the eyes are rather small for this genus, hence my doubt; in other respects it agrees with the description of *cassidae* (and in a dorsal view of the head, the eyes appear just as in Erdös' figure 4). If not *cassidae,* then it must be an undescribed species.

Pediobius planiventris (Thomson)

Pleurotropis planiventris Thomson, 1878, *Hym. Scand.,* **5**: 252, ♂ ♀.

Pediobius planiventris (Thomson), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 190.

There are five specimens under the name *planiventris* in Thomson's collection, but most of them have wrong locality data. A female bearing a small violet-coloured ticket marked "Hg" [Hälsingborg] is selected as lectotype.

New records:

England: Buckinghamshire, Salcey Forest, 30.vii.1956, several males and females (Graham).

Ireland: Co. Down, Newcastle, Tipperary Wood, a number of males and females swept at the end of June, 1957 (Graham).

Further material has enabled me to assess the variation of this species more satisfactorily. There is considerable variation in the proportions of the flagellar segments; in larger females, these are relatively more elongate, in very small females they may be almost quadrate. The lectotype is a small female and has the funicular segments only slightly elongate (Thomson says "subquadratis"). The colour of the head and thorax also varies. In many females these parts are bright green to blue-green, but in some (especially those of small size, such as the lectotype) the vertex and scutellum may be ± tinged with violet-black.

All my specimens have been taken in or at the edges of woods, where the grass *Brachypodium sylvaticum* L. was abundant. Dr. Claridge has obtained specimens from stems of this grass; one of the females reared by him (Buckinghamshire, Hell Coppice, near Oakley, 17.v.1957) is a small specimen very like Thomson's type. Possibly *planiventris* is chiefly attached to hosts on this grass, perhaps to *Eurytoma collaris* (Walk.) or *Tetramesa fulvicollis* (Walk.), both of which occur in company with the *Pediobius*.

Pediobius eubius (Walker)

In a very useful paper on some *Pediobius* species, von Rosen (1959, *Ent. Tidskr.*, **80** (3-4): 165) has indicated that *eubius* appears particularly to parasitize *Tetramesa angustipennis* (Walker) on *Alopecurus pratensis;* whilst Dr. Claridge has also reared it from stems of this grass.

It is not easy to separate some females of *planiventris* (Thomson) from those of *eubius* (Walker), but the antennal flagellum of the former tends to be more slender and nearly filiform. Also the two species appear to be associated with different grasses and habitats.

Pediobius alaspharus (Walker)

Entedon Alaspharus Walker, 1839, *Mon. Chalciditum,* **1**: 109, ♀.

Pediobius alaspharus (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 190.

Walker's original record was "Ireland, Mr. Haliday". I cannot find any specimens so named in Haliday's collection. In that of Walker in the British Museum (Nat. Hist.) there is one female labelled "Alaspharus" in his handwriting; it could well be a

Haliday specimen, and is accepted as type. It much resembles *eubius* (Walker) but has a relatively shorter gaster.

In my key to *Pediobius* (1959: 189-191) I treated *eubius* and *alaspharus* as distinct species on the basis of the different proportions of the female gaster. I still believe that these two may be distinct, though further research on this question is desirable. The evidence suggests that several sibling species are involved both in the group of *eubius* (and also in that of *epigonus,* which includes *acantha,* see below).

Pediobius acantha (Walker)

Entedon Acantha Walker, 1839, *Mon. Chalciditum,* **1**: 107, ♀.

Pediobius acantha (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 191.

In my key to British *Pediobius* (1959: 191) I gave some characters for distinguishing *acantha* from *epigonus* (Walker). Amongst these, a difference in the antennal funicle of the female was mentioned, that of *acantha* being stouter proximally than that of *epigonus.* The difference is relative, and owing to variation some specimens may cause doubt. However, in the female of *acantha,* the eyes are slightly larger than those of female *epigonus* (the least distance between the eyes being 0·8-0·9 the length of an eye in *acantha,* about 0·66 in *epigonus*). The frons and vertex of *acantha* are often ± violet-black; sometimes the scutellum is partly or wholly of the same colour, occasionally even the mesoscutum may be so coloured; in *epigonus,* these parts are green to blue-green (occasionally the frons and vertex are partly darkened).

I have examined females of *acantha* bred from the following Agromyzid hosts:—Surrey, Box Hill, one female emerged 8.viii.1953 from *Phytomyza periclymeni* de Meij.; one female em. 10.vii.1953 from *Phytagromyza tridentata* Lw. (K. A. Spencer). Most of my own swept specimens have been taken from foliage of willows (*Salix* spp.). The species mentioned by Barnes (1949, *Gall Midges of Economic Importance,* 6) under the name "*Pleurotropis ? caenus* Walker" and recorded (*loc. cit.*: 34) as a parasite of *Rhabdophaga justina* Barnes and of *Rh. purpureaperda* Barnes, may be *acantha* (Walker).

Two other European species are extremely close to *acantha,* the three forming a complex. The others are *P. helianthemellae* Erdös (1961, *Ann. hist.-nat. Mus. Nat. Hung. pars Zoologica,* **53**: 486) and *P. dorycniellae* Erdös (1961, *ibid.*: 487). Dr. Erdös kindly lent me female syntypes of both his species for comparison with *acantha;* my conclusions are as follows:

Both *helianthemellae* and *dorycniellae* have the body (apart from the propodeum, and in one the vertex partly) entirely violet-black; I have not seen any female *acantha* which are so extensively darkened. They also have the gaster rather shorter than in any of my specimens of *acantha* (rather less than 1·5 times as long as broad). As regards their hosts, both were bred from Lepidopterous leaf-miners of the genus *Stigmella* (=*Nepticula*), whereas *acantha* has so far been obtained only from dipterous hosts of the family Agromyzidae. The host difference may not be significant, but it is at least suggestive.

The female of *dorycniellae* also differs from that of *acantha* in having the eyes a little smaller, the head slightly more transverse, and the antennal funicle rather less stout proximally. *P. dorycniellae* was bred (see Erdös, *ibid.*: 488) from *Nepticula gozmanyi* Szöcs mining leaves of *Tetragonolobus siliquosus* L. (Papilionaceae) and from *Nepticula dorycniella* Suire in leaves of *Dorycnium* sp. (Papilionaceae). Neither of these *Stigmella* (=*Nepticula*) species is known from the British Isles, whilst as regards their foodplants, only *Tetragonolobus* occurs here, being naturalized in a few places in the south of England (see Clapham, Tutin & Warburg, 1952, *Flora of the British Isles*: 435-6).

The female of *helianthemellae* is even closer to that of *acantha*, differing only in the small colour and gastral characters mentioned above. It was bred (Erdös, *ibid.*: 487) from *Nepticula helianthemellae* H.-S. in leaves of *Helianthemum canum* L. The host is not known from Britain, although its food-plant occurs locally in Britain and Ireland.

From the foregoing discussion it would appear probable that the two above species described by Erdös are distinct from *acantha* (Walker).

Chrysocharis Förster and allied genera

In my key to the British species of *Chrysocharis* (1959, *Trans. Soc. Brit. Ent.*, **13** (10): 194-196) I included *clinius* (Walker) at couplet 24(25). However, as I have since found, the antennae of *clinius* have a structure different from that of *Chrysocharis* species and more like that of *Omphale*. A new genus will probably have to be created for *clinius* (and Dr. Erdös actually has a manuscript name for this) but for the present it will have to remain in *Chrysocharis* s. lat.

My key to the British genera of Entedontinae (1959, *Trans. Soc. Brit. Ent.*, **13** (10): 185-188) must be modified so that *clinius* will run correctly. This may be done by deleting couplets 27(28) and 28(27) and substituting the following:

27(28) Forewing: postmarginal vein conspicuously longer than the stigmal vein; petiolar foramen of propodeum narrow, semicircular or trapezeform, embracing the petiole; eyes separated by a distance at least slightly less than their own length, their ventral facets larger than their dorsal ones; point of divergence of arms of frontal fork nearer to the median ocellus than to the antennal toruli; anterior margin of clypeus usually subtruncate, rarely distinctly curved forw

27a(27b) Female: antenna with 3 anelli, the third moderately large and furnished with bristles; those of the male with 3 discoid anelli. Flagellum often with 3 funicular segments and a 2-segmented clava; if with 5 well-separated segments, then either (a) the forewing costal cell has a complete row of hairs and the gastral petiole is elongate, (b) the propodeal callus has 4-14 bristles, the gaster is subcircular and the petiole is as long as the propodeum, (c) the postmarginal vein is at most 1·5 times as long as the stigmal vein. .... *Chrysocharis* (part)

27b(27a) Antennae with only 1 anellus which is discoid and devoid of bristles; flagellum with 5 well-separated segments in both sexes. Costal cell of forewing very narrow, bare. Petiole of gaster small, shorter than the propodeum, subconical and not longer than broad; propodeal callus with 2 bristles. Gaster ovate. Postmarginal vein thin, about twice as long as the stigmal vein .... *clinius* (Walker)

28(27) Forewing: postmarginal vein not longer than the stigmal vein except in some species of *Omphale* (which have the petiolar foramen broader, subtriangular, and not embracing the petiole; the eyes separated by a distance not or hardly less than their own length, and with facets of practically uniform size; the point of divergence of the arms of the frontal fork about midway between the median ocellus and the toruli; and the anterior margin of the clypeus curved forwards).

28a(28b) Antennae of female with 3 anelli, the third moderate-sized and clearly visible; eyes only moderately thickly hairy; frontal fork Y-shaped. .... *Chrysocharis* (part)

28b(28a) Antennae of female either without anelli, with 1-2 minute discoid anelli, or if (*Enaysma*) with 3 anelli of which the third is moderate-sized, then the eyes have very dense, rigid pubescence and the frontal fork is T-shaped.

"*Chrysocharis*" *clinius* (Walker)

Entedon Clinius Walker, 1839, *Mon. Chalciditum,* **1**: 90, ♀.

7 females stand under this name in the British Museum (Nat. Hist.), but two of these are not syntypes. Lectotype: a specimen with a circular label with serial number 38.4.5.223.

The head and thorax are obscurely greenish to bronze, the vertex and scutellum tend towards a dull purplish tint; the legs have all the femora infuscate; the tibiae testaceous, very often with a greater or less degree of infuscation.

New records (all females):

England: Berkshire, Tubney Wood, 15.vi.1952; Lincolnshire North, Salmonby, 18.vii.1951.

Scotland: Mid Perth, Killin, 7.vii.1952.

Note:—This species must not be confused with *Cirrospilus Clinias* Walker (1838, *Ann. nat. Hist.,* **1** (6): 451) which belongs to *Neochrysocharis* (q.v.).

Chrysocharis Förster

Chrysocharis Förster, 1856, *Hym. Studien,* Heft **2**: 79, 83.

Kratochviliana Malac, 1943, *Folia ent.,* **6**: 1, syn. n.

Epilampsis Delucchi, 1954, *Neue Arten aus der Subfam. der Entedontinae*: 3, syn. n.

The generic name *Chrysocharis* is well-known and widely used. The description of *Kratochviliana* although detailed, contained some errors which made it impossible to identify the genus; recently, however, Boucek has been able to recognize it as being the same as *Epilampsis* Delucchi.

Delucchi (1954) divided *Chrysocharis* into three genera (*Enaysma* Del., *Epilampsis* Del., and *Chrysocharis* s. str.). In 1959 (*Trans. Soc. Brit. Ent.,* **13** (10): 192-7) I adopted these genera. I still regard *Enaysma* as a reasonably distinct entity. On the other hand I find it difficult to maintain *Kratochviliana* (=*Epilampsis*) as distinct from *Chrysocharis* and am treating it here as a subgenus of the latter. The only essential distinction between typical *Kratochviliana* and *Chrysocharis* species is the presence of a margined collar in the former and its absence in the latter. This character works well for a number of species, but in a few it is hard to appreciate. In one species of *Kratochviliana* in fact, the collar is margined in large specimens but immarginate in small ones; in all these specimens the pronotum has a shiny strip along its hind margin, extending from side to side. In most species of *Chrysocharis* s.str. the pronotum is reticulate with at most a small shiny patch at each postero-lateral corner; but in a few the pronotum has a shiny strip along the whole of its hind margin, thus resembling that of the small *Kratochviliana* mentioned above. Moreover, the exact structure of the collar region in some cases cannot be seen unless the head is drawn well forward. So as to try and minimise the risk of error I include an "artificial" key to the subgenera, which may be used as an additional check.

Key to the subgenera

1. Forewing: underside of costal cell with a complete row of hairs which reaches the apex of the cell 2
— Forewing: the row of hairs on the underside of the costal cell does not extend beyond the middle of the cell 3

2. Frons above the fork at least mainly smooth; scutellum with raised sculpture; petiole of gaster at least slightly longer than the median length of the propodeum and obviously longer than broad, stongly reticulate; flagellum of both sexes with 5 well-separated segments. Pronotum without a collar ...... *Chrysocharis*

— Frons above the fork distinctly alutaceous. Either the scutellum has delicate engraved sculpture; or the petiole is shorter than the propodeum, not longer than broad, and weakly reticulate, whilst the flagellum has 3 funicular segments and a 2-segmented clava. Pronotum with at least a slight indication of a margined collar. .... *Kratochviliana*

3. Antennae: flagellum with 5 well-separated segments 4

— Antennal flagellum with 3 funicular segments and a 2-segmented clava 5

4. Pronotum with a collar which is delimited anteriorly by a strong ridge which extends from side to side; behind this ridge the collar is smooth at least along its hind margin ...... *Kratochviliana* (a few males)

— Pronotum without a margined collar; in profile the dorsal surfaces of the mesoscutum and pronotum form an even curve; if the hind margin of the pronotum is at all shiny, it is so only at the postero-lateral corners (near the prothoracic spiracles) .... *Chrysocharis*

5. Pronotum with a collar which is delimited anteriorly by a raised margin (this margin usually extends from side to side, but is sometimes indicated only in the middle); behind the margin the collar is ± shiny and smooth ......*Kratochviliana*

— Pronotum without a raised margin delimiting a collar; either reticulate all over with at most a small shiny area at each postero-lateral corner; or if (a few species) with a ± shiny and smooth strip along its hind margin, this is not delimited anteriorly by any ridge, even in the middle. .... *Chrysocharis*

Subg. *Kratochviliana*

Key to the species

1. Female: propodeal callus with 7 or more bristles; forewing usually with a large fuscous discal cloud (this may be absent in freshly-emerged specimens, or faint in some mature ones); anterior margin of mesepimeron strongly curved; malar space slightly more than one quarter the length of an eye; breadth of oral fossa twice the malar space or hardly more; clypeus metallic.

Male: scape, pedicellus, and legs including all the coxae bright yellow; malar space very long, the breadth of the oral fossa only 1·5 times the malar space; head in front view more than 1·5 times as broad as high; eyes small, separated by about 1·5 times their own length, their inner orbits diverging slightly ventrad; frontal fork nearer to antennal toruli than to the median ocellus; flagellum with 3 funicular segments and a 2-segmented clava; clypeus metallic, its anterior margin truncate .... *gemma* (Walker)

— Female: propodeal callus with at most 5 bristles; forewing usually immaculate (occasionally with a faint discal cloud, or uniformly infumate, in which case the anterior margin of the mesepimeron is hardly curved); malar space usually shorter; breadth of oral fossa usually less; clypeus sometimes pale.

Male: if the scape, pedicellus, and legs including all the coxae are yellow, then the flagellum has 5 well-separated segments, the clypeus is yellow, the breadth of the oral fossa is about twice the malar space, the head is rather less transverse and the eyes rather less widely separated with their inner orbits slightly emarginate, whilst the frontal fork is about equidistant from the toruli and the median ocellus 2

2. Anterior margin of mesepimeron strongly curved; postmarginal vein of forewing about three times as long as the stigmal vein. Clypeus testaceous in female, yellow in male; its anterior margin slightly curved forwards.

Female: malar space nearly one third the length of an eye; breadth of oral fossa only twice the malar space.

Male: scape, pedicellus, and legs including all the coxae, bright yellow; flagellum with 5 well-separated segments; head in front view fully 1·5 times as broad as high; eyes separated by a little more than their own length .... *illustris* sp. n.

— Anterior margin of mesepimeron slightly curved, or straight; postmarginal vein at most about 2·5 times the length of the stigmal vein. Clypeus usually metallic, if yellowish then its anterior margin is truncate.

Female: malar space (except in *moravica* and *nigricrus*) shorter; oral fossa usually broader.

Male: pedicellus and coxae dark; flagellum (except in *larina* and *pilicoxa*) with 3 funicular segments and a 2-segmented clava; head usually less transverse and eyes closer together 3

3. Forewing: lower surface of costal cell with a row of hairs which extends nearly or quite to the apex of the cell; most of the hairs composing it are situated on the membrane above the submarginal vein. Hind coxae with 3-10 hairs on their externo-dorsal surface. Propodeal callus with 2-5 (most often 3-4) bristles. Legs relatively dark, the femora mainly so, the tibiae usually ± infuscate (especially in *nigricrus*) 4

— Forewing: lower surface of costal cell with the row of hairs confined to the basal half, most of the hairs composing it arising from the submarginal vein. Hind coxae with or without hairs externo-dorsally. Legs usually not so extensively darkened 5

4. Scutellum with delicate, engraved sculpture; that of the head, mesoscutum, axillae, and dorsellum relatively weaker, so that these parts are moderately shiny. Pronotal collar slightly margined in the middle only. Forewing: margined vein plus parastigma 6-6·5 times as long as the stigmal vein. More squat species; thorax about 1·5 times as long as broad. Clypeus of female metallic. Male unknown .... *argyropezae* sp. n.

— Scutellum with strong, raised sculpture; that of the head, mesoscutum, axillae, and dorsellum relatively strong, so that these parts are duller. Pronotal collar fairly distinctly (though irregularly) margined. Forewing: marginal vein plus parastigma 7·5-8·5 times as long as the stigmal vein. More slender species; thorax relatively more elongate. Clypeus of female often ± testaceous, that of the male yellowish ... *nigricrus* (Thomson)

5. Petiole of gaster [see Graham, 1959, figs. 15, 16] 1·5-2 times as long as broad, mainly or wholly reticulate, as long as or longer than the propodeum. Hind coxae with 2-10 hairs upon their dorsal surface. Malar space in female extremely short (one eighth to one twelfth the length of an eye), in male slightly less short. Dorsellum with a fovea on each side and a subtriangular depression in the middle 6

— Petiole nor or hardly longer than broad; in most species it is shorter than the propodeum, small, subconical, and smooth or nearly so; if practically as long as the propodeum and for the most part reticulate (figs. 14-16) then the sculptured portion is ± transverse. Hind coxae often bare dorsally. Malar space sometimes longer. Dorsellum usually without distinct foveae 9

6. Whole frons shiny, very weakly sculptured or mainly smooth. Sharp margin of occiput continued on to upper part of temples. Petiole tending to be parallel-sided in its posterior two-thirds, relatively strongly uniformly reticulate. Median carina of propodeum complete and sharp.
Male: gaster with a pale subbasal spot; antenna with 3 funicular segments and a 2-segmented clava (the two claval segments closely united).
Female: eyes separated, at level of toruli, by hardly half their own length .... *prodice* (Walker)

— Frons below the fork strongly densely reticulate, relatively dull. Margin of occiput at most hardly reaching the upper ends of the temples. Petiole tending to expand gradually towards its apex, often rather weakly reticulate (or partly nearly smooth). Male: gaster without a pale spot; flagellum virtually with 5 separated segments (the two claval segments separated by a strong constriction). Female: eyes separated by about two-thirds their own length 7

7. Propodeum with a trapeziform area, marked off by a strong transverse keel, just above the petiolar foramen (as in Graham, 1959, fig. 15); median carina complete, sharp. Hind coxa dorsally with about 7-10 hairs. Grooved line separating the mesepimeron from the mesopleuron nearly straight; sharp margin of occiput traceable to a little laterad of the ocelli; frons above the fork moderately shiny, rather more weakly sculptured than below the fork) .... *pilicoxa* (Thomson)

— Propodeum having its petiolar foramen semicircular, without such an area; median carina incomplete or irregular, often represented only by a basal tubercle. Hind coxa dorsally with fewer hairs. Either the line separating the mesepimeron from the mesopleuron is slightly curved, and the frons above the fork is shiny and very weakly sculptured; or the frons above the fork is as strongly reticulate as below it 8

8. Frons above the fork about as strongly reticulate as below it, not very shiny. Sharp margin of occiput traceable nearly to the upper ends of the temples. Grooved line separating the mesepimeron from the mesopleuron practically straight ... *larina* (Walker)

— Frons above the fork shiny, weakly sculptured (alutaceous) or ± smooth. Occiput margined in middle only (behind the ocelli). Grooved line separating the mesepimeron from the mesopleuron slightly curved at its upper end .... *tamus* (Walker)

9. Malar space extremely short (less than breadth of scape and only one eleventh to one twelfth the length of an eye in female, about one ninth in male). Propodeum [see Graham, 1959, fig. 12] with a strong T-shaped carina; petiole with a distinct transverse, reticulate portion. Scutellum with slightly raised sculpture .... *assis* (Walker)

— Either malar space is longer (about equal to breadth of scape) or (*truncatula* sp. n.) the propodeal carina is not T-shaped and the scutellar sculpture is ± engraved on its disc 10

10. Malar space very short (less than breadth of scape and only about one eleventh of eye). Sculpture of scutellum ± engraved discally, elsewhere hardly raised above the general surface. Forewing subtriangular, its apex subtruncate ... *truncatula* sp. n.

— Malar space about equal to breadth of scape and (in female) at least one eighth the length of an eye. Sculpture of scutellum usually distinctly raised (in *phyllotomae* and *laricinellae* the disc sometimes has engraved sculpture, but in these species the apex of the forewing is rounded) 11

11. Occiput sharp medially, the sharp edge traceable nearly to the upper ends of the temples. Petiole (figs. 15, 16) with an expanded, ± reticulate portion. Pronotal collar very broad (medially its length is one seventh to one fifth that of the mesoscutum) 12

— Occiput with at most a ridge in the middle, not extending lateral beyond the level of the hind ocelli. Petiole usually not expanded. Pronotal collar narrower (shorter medially) ... 13

12. Marginal vein plus parastigma 5·7-6·5 times as long as the stigmal vein. Frons above the fork more weakly reticulate and more shiny .... *eurynota* sp. n.

— Marginal vein plus parastigma 7·5-8·5 times as long as the stigmal vein. Frons above the fork more strongly reticulate and less shiny .... *collaris* sp. n.

13. Gaster of female lanceolate, 2·5-3·5 times as long as broad, at least as long as (in *laomedon* usually, in *elongata* sometimes, longer than) the head plus thorax. Propodeum; median carina complete, usually sharp and straight 14

— Gaster of female long-ovate to subcircular, at most twice as long as broad and usually less, usually shorter than head plus thorax (as long as head plus thorax in some *nephereus,* in which the propodeal carina is absent or represented only by a basal tubercle). Propodeal carina not often complete, sharp, and straight; most often irregular or incomplete 15

14 Malar space very short, in female one seventh to one eighth the length of an eye. Vertex with a pair of conspicuously long bristles (corresponding to those labelled *ov* in fig. 41) whose length is nearly 1·5 times the distance between the posterior ocelli. Vertex, and disc of thorax, usually ± fiery; legs, except coxae, white .... *laomedon* (Walker)

— Malar space longer (in female about equal to breadth of scape and about one fifth the length of an eye). Vertex with the bristles mentioned above relatively shorter, their length about equal to the distance between the posterior ocelli. Vertex golden-green, thorax green to blue; femora sometimes ± darkened proximally .... *elongata* (Thomson)

15. Pronotal collar at most weakly margined medially. (Resembles *elongata* Thoms. but has a much shorter gaster. Scutellum (fig. 9) slightly longer than broad, finely reticulate. Whole frons rather dull. Propodeal carina irregular or vague) *submutica* sp. n.

— Pronotal collar distinctly margined 16

16. [Malar space about one third the length of an eye; eyes separated by about their own length. A rather elongate species with the facies of *nigricrus,* with scutellum longer than broad; legs very dark, usually only the knees and tarsi ± testaceous; wings infumate; frons above fork, vertex, and scutellum, with rather strong sculpture, hence not very shiny. *moravica* Malac (type-species of *Kratochviliana,* not known in Britain.)]

— Malar space usually about one fifth, at most one quarter, the length of an eye; eyes separated by less than their own length. Legs almost always more extensively pale than in *moravica* (occasionally almost as heavily infuscate in some *laricinellae,* in which the wings are subhyaline, whilst the frons above the fork, vertex, and scutellum, have weaker sculpture so that they are more shiny) 17

17. Frons above the fork very shiny (more shiny than below the fork) delicately alutaceous or partly smooth. Mesoscutum greenish; scutellum violet- or bluish-bronze, not or hardly longer than broad .... *nitidifrons* sp. n.

— Frons above the fork wholly reticulate, nowhere quite smooth, at most slightly more shiny than the frons below the fork. If the scutellum is at all tinged with violet or purplish, then the mesoscutum tends to be tinged with the same colours, whilst the scutellum is at least slightly longer than broad ... 18

18. Frons above the fork with rather delicate and wide-meshed reticulation, shiny; below the fork moderately shiny. Propodeal callus usually with 3 (occasionally only 2) bristles. Legs, except coxae and tips of tarsi, white or cream .... *phyllotomae* Del.

— Frons both above and below the fork normally with fine dense reticulation, dull or fairly dull; in some *laricinellae* the frons above the fork may be more weakly sculptured and more shiny, but in this species the propodeal callus has only 2 bristles, the femora are at least basally infuscate, whilst the tibiae are often ± darkened 19

19. Scutellum distinctly longer than broad. All the femora are at least broadly darkened at their bases, often mainly so; the tibiae are sometimes ± extensively infuscate. Propodeum: median carina usually incomplete and Y-shaped, rarely both complete and straight 20

— Either the scutellum is not longer than broad; or the femora and tibiae are white with at most the hind femur darkened basally; or the propodeum has a complete straight median carina (sometimes two of these characters occur in combination) 21

20. Femora usually mainly dark, occasionally only dark at the base, tibiae often ± extensively infuscate (the pale parts of the foregoing yellowish-testaceous); tarsi varying from testaceous with their tips brown, to almost entirely black. Antenna of female: first funicular segment equal to or shorter than the pedicellus, third not longer than the first segment of the clava. Head, mesoscutum, and scutellum more shiny and less strongly sculptured .... *laricinellae* (Ratz.)

— At most the hind femora mainly dark, the others dark only basally; tibiae usually whitish, rarely faintly infuscate in part; tarsi whitish at least proximally. Antenna of female: first funicular segment as long as or longer than the pedicellus, third slightly longer than the first segment of the clava. Head, mesoscutum, and scutellum duller and more strongly sculptured .... cf. *nitetis* (Walker)

21. Scutellum (fig. 10) as broad as long, rather flat, except in small specimens very finely reticulate; mid lobe of mesoscutum also very finely reticulate (as a rule hardly more coarsely so than the scutellum) and not strongly convex; propodeum alutaceous, relatively shiny, the median carina

absent or represented only by a basal tubercle; gaster of female slightly pointed, usually as long as or slightly longer than the thorax (rarely slightly shorter) .... *nephereus* (Walker)

— Not with the above combination of characters. Either the scutellum is distinctly longer than broad and more convex; or it is more coarsely sculptured; or the propodeum has some stronger sculpture medially, and very often a median carina (which may be ± Y-shaped, or complete and straight). Gaster of female relatively shorter and more obtuse apically 22

22. Whole vertex relatively dull, very densely, finely, and nearly uniformly reticulate like the frons. Forewing distinctly subtruncate at apex. (Mesoscutum and scutellum rather dull, very finely densely reticulate. Legs, except coxae, white; vertex and thorax green to blue; forewing often with a faint yellowish-infumate spot on the disc). ...... *nautias* (Walker)

— Vertex more finely and weakly reticulate than the frons, relatively shiny (especially between the hind ocelli and the eyes). Forewing only very slightly subtruncate at apex. Hind femora sometimes ± infuscate; vertex usually tinged with gold or copper; thorax green, or partly tinged with gold or copper; forewing immaculate 23

23. Propodeum with a complete, straight median carina. Scutellum slightly longer than broad ....*novellus* (Walker)

— Propodeum with its median carina irregular, usually present only in the basal half where it tends to form a Y-shaped crest; sometimes faintly traceable beyond this to the hind margin. Scutellum sometimes as broad as long 24

24. Scutellum at least slightly longer than broad, rather less coarsely reticulate. Size larger, length 1·5-2·2 mm. .... *nitetis* (Walker)

— Scutellum (fig. 11) as broad as long, coarsely reticulate. smaller, 1·0-1·8 mm. .... *pentheus* (Walker)

Chrysocharis (*Kratochviliana*) *argyropezae*, sp. n.

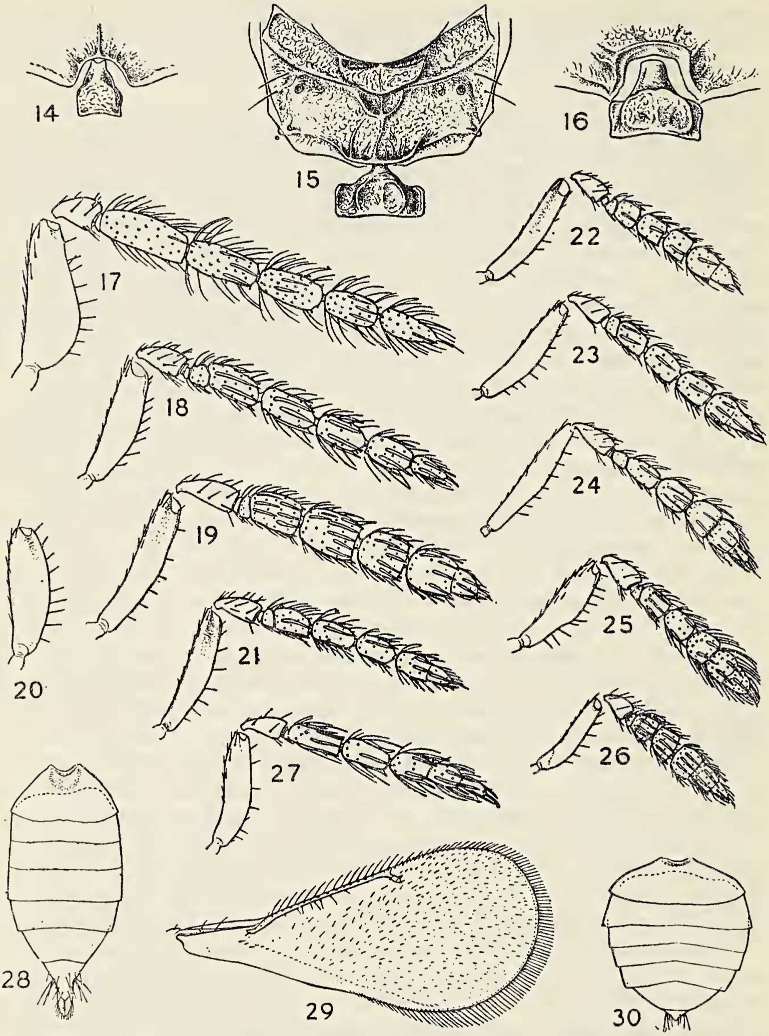
Female.—Head and thorax bright green with some golden reflections, particularly upon the vertex and scutellum; in the Irish specimen the frons below the fork, temples, sides of pronotum, prosternum, and metapleuron, are purplish; petiole with a slight green tinge; gaster dorsally green at base and apex, bronzy (in the Irish female purplish) on the disc, ventrally varied with greenish and purple. Antennae black with a slight metallic tinge (bronze on the scape, bluish on the pedicellus and flagellum). All coxae wholly, all femora except their tips, black with green and brassy reflections; trochanters partly, knees, and mid and hind tarsi mainly, yellowish; tibiae testaceous with a brownish subbasal ring or (in the Irish female) fuscous with only their bases and apices pale: fore tarsi except at base, fourth segment of mid and hind tarsi, fuscous. Tegulae metallic; forewing faintly uniformly infumate, venation testaceous to fuscous. Length 1·65-2 mm.

Head.—Malar space about equal to breadth of scape. Frons between toruli and the fork very finely densely reticulate, slightly shiny; arms of frontal fork forming a very obtuse angle; frons above the fork, and vertex, more shiny and more delicately reticulate (alutaceous); hind margin of vertex slightly ridged in the middle only. Ocelli in a triangle of about 100°. Antennae (fig. 18): combined length of pedicellus and flagellum slightly greater than breadth of head; pedicellus in profile nearly twice as long as broad; third anellus about one-third the length of the first funicular segment; flagellum hardly stouter than the pedicellus, filiform (except for the tapered clava); segments 1-4 are separated from each other by distinct peduncles, 5 is separated from 4 by a strong constriction (but not apparently by a distinct peduncle); the segments decrease slightly in length, the first being about twice as long as broad and very slightly longer than the pedicellus, the second similar, the third and fourth slightly shorter, the latter about 1·6 times as long as broad.

Thorax about 1·5 times as long as broad. Collar weakly margined. Mesoscutum 1·7-1·8 times as broad as long, convex and sloping steeply into the pronotum, shiny, finely reticulate (especially the side lobes). Scutellum slightly longer than broad, moderately convex, shiny, with fine and delicate engraved sculpture. Dorsellum crescentic, about three times as broad as long; delicately, somewhat longitudinally, reticulate. Propodeum short medially (hardly one-third the length of the scutellum), very shiny, alutaceous; medially the sclerite is slightly raised, but the median carina is indistinct or absent; petiolar foramen semicircular; callus with 4-6 bristles. Anterior margin of mesepimeron slightly curved. Hind coxa with delicate engraved sculpture, its dorsal surface with 3-7 bristles. Forewing long, about twice as long as broad; its apical margin almost evenly curved; costal cell broad, its underside with a complete row of hairs extending to the apex of the cell; basal cell with a few hairs on its under surface distally; basal vein pilose, speculum closed below; subcubital line of hairs complete; marginal vein plus parastigma 6-6·5 times as long as the stigmal vein, the latter forming an angle of about 60° with the postmarginal vein, which is rather more than twice as long as the stigmal vein.

Petiole somewhat longer than the median length of the propodeum, conical and gradually expanding from base to apex, rather more than 1·5 times as long as broad, weakly reticulate (except basally), without hairs. Gaster slightly shorter than, or as long as, the thorax, slightly broader than the latter, suboval and 1·2-1·3 times as long as broad, obtusely pointed apically; last tergite much shorter than its basal breadth.

Male.—Unknown.



Figs. 14-30.—14, *Chrysocharis* (*Kratochviliana*) *truncatula* sp. n., ♀, part of propodeum, and petiole; 15, *Ch.* (*K.*) *eurynota* sp. n., ♀, metanotum, propodeum, and petiole; 16, *Ch.* (*K.*) *collaris* sp. n., ♀, part of propodeum, and petiole; 17, *Ch.* (*K.*) *illustris* sp. n., ♂, antenna; 18, *Ch.* (*K.*) *argyropezae* sp. n., ♀, antenna; 19, *Ch.* (*K.*) *collaris* sp. n., ♀, antenna; 20, *Ch.* (*K.*) *nitidifrons* sp. n., ♂, antennal scape; 21, the same, ♀, antenna; 22, *Ch.* (*K.*) *truncatula* sp. n., ♀, antenna; 23, *Ch.* (*K.*) *submutica* sp. n., ♀, antenna; 24, *Chrysocharis* (*Ch.*) *chlorus* sp. n., ♀, antenna; 25, the same, ♂, antenna; 26, *Neochrysocharis arvensis* sp. n., ♀, antenna; 27, *Achrysocharis smaragdula* sp. n., ♀, antenna; 28, *Asecodes hyperion* sp. n., ♀ gaster; 29, *A. mento* (Walk.), ♀, forewing; 30, the same, ♀, gaster.

England: Berkshire, Bagley Wood, one female (the Type) bred v.1924 from cocoon of *Stigmella argyropeza* (Zeller); the larva of the host was found on aspen (*Populus tremula* L.) (E. G. R. Waters).

Ireland: Co. Dublin, Bushy Park, 28.x.1955, one female (A. W. Stelfox).

Type in the Hope Department, University Museum, Oxford; paratype in my own collection.

This is a very distinct species and may be distinguished from the others so far described by the combination of characters given in the key.

Chrysocharis (*Kratochviliana*) *illustris* sp. n.

Female.—Head and thorax green with some golden reflections especially on the face; clypeus yellowish-testaceous; mesepimeron bronze; gaster bronze, tergite 1 green. Antennae fuscous; scape yellow except in its distal third. Coxae fuscous, paler apically; legs otherwise pale yellow, only the pretarsi dusky. Length 1·4 mm.

Anterior margin of clypeus slightly curved forwards. Malar space long, nearly one-third the length of an eye; oral fossa small, its breadth only twice the malar space. Clypeus, face below toruli, cheeks and lower part of temples, polished and virtually smooth; temples with some very weak alutaceous sculpture. Frontal fork forming an obtuse angle; frons both above and below the fork moderately shiny, with moderately fine, somewhat raised reticulation. Vertex rather shiny, with some fine, very delicate alutaceous sculpture laterally; between the ocelli with some very fine sculpture of the same type. Ocelli in an obtuse-angled triangle. Eyes very sparsely haired, rather widely separated (by a distance only slightly less than their own length). Antennae: combined length of pedicellus and flagellum about 1·25 times the breadth of the mesoscutum; pedicellus not quite twice as long as broad; third anellus large, about one-third the length of the first funicular segment; flagellum subfiliform (only the clava tapers distally), slightly stouter than the pedicellus; funicle with 3 segments, the first slightly longer than the pedicellus and twice as long as broad, second hardly shorter, third about 1·6 times as long as broad; first segment of the (2-segmented) clava slightly longer than broad, shorter than the third funicular segment.

Thorax about 1·7 times as long as broad, slightly flattened dorso-ventrally. Pronotal collar margined throughout, not broad (medially about one-eighth the length of the mesoscutum). Mesoscutum about 1·7 times as broad as long, not very convex, moderately shiny, with relatively coarse-meshed and strong reticulation, distinctly raised above the general surface. Scutellum slightly longer than broad, rather weakly convex, sculptured as the mesoscutum. Dorsum lunate, about 3·5 times as broad as long, shiny, with some weak reticulation. Propodeum sloping only slightly, slightly less than half the length of the scutellum, polished, nearly smooth with a few wrinkles along its hind margin; median carina vaguely indicated by some fine wrinkles; petiolar foramen semicircular; callus with three bristles. Mesepimeron large, polished, its anterior margin strongly curved. Hind coxae bare dorsally, their outer aspect moderately shiny, with rather coarse-meshed but only slightly raised reticulation. Forewing slightly more than twice as long as broad, its apical margin evenly curved; costal cell moderately broad (length : breadth about 8 : 1), the row of hairs on its underside not reaching the apex of the cell; marginal vein plus parastigma about 8 times the length of the stigmal vein, postmarginal vein about 3 times as long as the stigmal; basal vein pilose, speculum moderately large, closed below; subcubital line of hairs entire; disc of wing rather sparsely hairy; apical fringe shorter than stigmal vein. Hindwing obtuse at apex, its fringe about one-third the breadth of the wing.

Petiole of gaster about two-thirds the length of the propodeum, about as long as broad, with a short and rather thick, smooth anterior neck; behind this a raised subrectangular portion which is finely irregularly reticulate and has a raised anterior crest. Gaster about twice as long as broad, about as long as but slightly narrower than the thorax, pointed apically where its sides meet at an acute angle; first tergite occupying about a quarter of the whole surface; last tergite about half as long as its basal breadth; ovipositor sheaths concealed in dorsal view.

Male.—Differs from the female as follows:—Gaster purplish discally. Antennal scape and pedicellus bright orange-yellow, flagellum yellowish-brown. Clypeus yellow; mandibles and palpi bright yellow. Legs, except bases of hind coxae, bright yellow; pretarsi dusky. Length 1·9 mm.

Head conspicuously broader than the mesoscutum (31 : 25), in dorsal view strongly transverse (about 2·5 times as broad as long), in front view (fig. 8) also strongly transverse (about 1·7 times as broad as high) with the genae converging very strongly; malar space nearly one-third the length of an eye. Frons above the fork, and vertex, more shiny, nearly smooth except for some reticulation just above the fork, and the ocellar triangle which is very finely alutaceous. Occiput slightly ridged medially. Antenna (fig. 17): scape strongly expanded; pedicellus plus flagellum slightly greater than breadth of head and about 1·3 times the breadth of the mesocutum; flagellum with 5 well-separated segments, proximally slightly stouter than the pedicellus but tapering distally; first funicular segment about three times, second and third about twice, fourth rather less than twice as long as broad, the fifth (excluding its terminal spine) about as long as the fourth.

Gaster rather shorter and narrower than the thorax, narrow where it joins the petiole but expanding gradually to near its apex, whence it narrows again.

England, Oxfordshire, North Oxford, 25.vii.1955, one male taken on foliage of black poplar (*Populus* sp., perhaps ×

canadensis Moench) in my garden (Graham).

Sweden, Skåne, Stehag, 31.vii.1959, one female (the holotype) swept on the shore of Ringsjön (Graham).

Type in the Hope Department, Oxford; paratype in my own collection.

A very distinct species which may be recognized by the combination of characters mentioned in the key. The male is remarkable for the unusual structure of its head and antennae, which much resemble those of certain species of *Enaysma* Delucchi.

Chrysocharis (*Kratochviliana*) *larina* (Walker)

?*Entedon Amasis* Walker, 1839, *Mon. Chalciditum,* **1**: 37, ♂ [recte ♀].

Entedon Larina Walker, 1839, *loc. cit.*: 46, ♂ [recte ♀].

Entedon Icetas Walker, 1848, *List Hym. Ins. Brit. Mus. Part 2.—Chalcidites. Additional Species*: 231, ♂ [recte ♀].

Epilampsis larina (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 194, *ex parte.*

Since the publication of my key to British *Epilampsis* (=*Kratochviliana*) in 1959 (*Trans. Soc. Brit. Ent.,* **13** (10): 192-194) it has become evident that I had confused two species under my concept of *larina* (Walker). The distinctions between *larina* and the other species (*tamus*) are given in my revised key. The two female syntypes in Walker's collection belong respectively to the two species here called *larina* and *tamus*; the first specimen, which is strongly suffused with coppery-purple, is taken as lectotype of *larina.*

Chrysocharis (*Kratochviliana*) *tamus* (Walker), comb. n.

Entedon Tamus Walker, 1839, *Mon. Chalciditum,* **1**: 49, ♂.

Epilampsis larina (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 194 (*ex parte*).

There are two male syntypes under this name in Walker's collection; these are conspecific. This species appears to be uncommon; I have the following new records:

England: Berkshire, Bagley Wood, 11.ix.1959, a few females and one male, on *Quercus robur* (L.); Wytham Wood, 27.ix.1957, one female; Buckinghamshire, Hell Coppice, near Oakley, 19.viii.1960, two females, on *Q. robur.*

Chrysocharis (*Kratochviliana*) *collaris,* sp. n.

Epilampsis boops Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 193 (nec *boops* Thomson, 1878).

Female.—Head and thorax bright green varied with golden-green; vertex mainly golden to coppery-red, face and frons below the fork often golden. Petiole black or greenish-black; gaster green with tergites 2-4 mainly, and the hind margin of tergite 5 narrowly, purplish. Antennal scape fuscous, paler proximally; pedicellus and flagellum black, with a slight bluish tinge in certain lights. Coxae concolorous with the thorax; mid and hind femora often ± broadly blackish basally, fore femur sometimes with a brownish dorsal streak; legs otherwise whitish or pale yellow, with only the fourth tarsal segment and the claws brownish. Tegulae yellowish with a dark spot on their hind margin. Wings hyaline; venation fusco-testaceous. Length 1·65-2 mm.

Head.—Malar space about equal to breadth of antennal scape. Frons between antennal toruli and the median ocellus finely densely reticulate, but glittering; the arms of the frontal fork form a very obtuse angle. Vertex shiny, very finely and delicately reticulate, but with a nearly smooth area between each hind ocellus and the eye; the hind margin of the vertex (except laterally) is sharp, sometimes slightly raised in the middle so as to form a margin. Ocelli in a triangle of about 90°. Antennae: combined length of pedicellus and flagellum somewhat less than the breadth of the head (about equal to that of the mesoscutum); pedicellus in profile nearly twice as long as broad; third anellus of moderate size, about one-third as long as the first funicular segment; funicle slightly compressed, in profile much broader than the pedicellus, its segments decreasing slightly in length, the first equal to or slightly longer than the pedicellus and about 1·5 times as long as broad, the third not or only slightly longer than broad; clava 2-segmented.

Thorax about 1·7 times as long as broad.

Pronotum: collar (fig. 13) remarkably long, one-seventh to one-fifth the length of the mesoscutum, with a sharp and strongly raised margin anteriorly, behind which there are several short longitudinal costulae. Mesoscutum about 1·5 times as broad as long, moderately convex but not steeply sloping towards the collar, finely reticulate (rather more coarsely on the disc). Scutellum very slightly longer than broad, not strongly convex, rather less finely reticulate than that of *nephereus* [fig. 10], especially anteriorly. Dorsellum ("metascutellum") finely reticulate. Propodeum medially rather more than one-third the length of the scutellum, very finely and lightly reticulate, its surface rather uneven and with some weak wrinkles as well as the reticulation; in the neck region (middle of hind margin of propodeum) there are a few longitudinal costulae; median carina represented in basal half of the sclerite only, by two keels which enclose a hollow, the keels extending from the base of the propodeum about one-third of its length, where they are intersected by a short transverse crest; callus with two bristles. The hind margin of the propodeum (fig. 16) is raised to form a strong carina which bounds the petiolar foramen; seen from behind (as in the figure) the carina appears as a rather broad strip which is nearly trapeziform in shape. Anterior margin of mesepimeron slightly curved. Hind coxa finely but fairly strongly reticulate externally, its dorsal surface bare. Forewing approximately twice as long as broad, its apical margin not quite evenly curved but with a slight tendency towards truncation; basal vein pilose, speculum closed below; subcubital line of hairs not broken; marginal vein plus parastigma about 7·5 times the length of the stigmal vein, the latter forming an angle of about 55° with the postmarginal vein, which is about 2·5 times as long as the stigmal vein.

Petiole (fig. 16) with a narrow conical basal neck, behind which is a strongly raised, expanded portion, which is subrectangular, nearly twice as broad as long, and reticulate. Gaster oval, distinctly shorter than, and not quite as broad as, the thorax, about 1·5 times as long as broad, slightly pointed apically(the sides converging posteriorly so as to meet at a right angle); last tergite hardly half as long as its basal breadth.

Male.—Unknown.

England: Lancashire South, Freshfield, 7.ix.1960, one female, beaten from *Betula.* Scotland, Mid Perth, Black Wood of Rannoch, 30.vi.1953, three females (one the holotype) swept from herbage amongst *Pinus* and *Betula* (Graham).

Type in the Hope Department, University Museum, Oxford; paratypes in my own collection.

Ch. collaris is very close to *nitetis* (Walker), but differs as follows (females):

The pronotal collar is broader, more strongly margined anteriorly, and with the longitudinal costulae which lie just behind the margin longer and stronger; the vertex is somewhat more distinctly ridged posteriorly; the antennal flagellum is slightly stouter (as seen in profile); whilst the expanded reticulate portion of the gastral petiole is rather more conspicuous (its length being somewhat greater).

I have a number of female *Chrysocharis* which resemble *nitetis* (Walker) in all respects except that the gastral petiole has no expanded reticulate portion, or merely a narrow slightly roughened ridge. I am inclined to regard these specimens as being within the range of variation of *nitetis,* but further study is needed before the question can be settled satisfactorily.

Chrysocharis (*Kratochviliana*) *eurynota* sp. n.

Female.—Closely resembles *collaris* sp. n., and differs only as follows:

Body green to blue-green; frons below the fork mainly coppery; metapleuron, parts of the mesopleuron, and the hind coxae, tinged with violet; gaster green with at most a slight bronze tinge on the disc. Femora either wholly pale, or the hind femora sometimes slightly brownish at the base; tarsal claws and pulvilli only brownish. Length 1·6-1·7 mm.

Head: frontal fork T-shaped (as in *Enaysma*), the arms of the fork forming a straight line; frons above the fork more finely and delicately sculptured than below it, shiny, and with a conspicuous fovea just in front of the median ocellus; vertex and temples rather more shiny, with even more delicate (finely alutaceous) sculpture. Antennal flagellum less stout, only slightly thicker than the pedicellus; funicular segments subequal in length, the third rather longer than in *collaris* (1·2-1·4 times as long as broad).

The propodeum of this species is shown in fig. 15.

Type in the Hope Department, Oxford; paratype in my own collection.

England: Lancashire South, Freshfield, 4.ix.1960, two females (one the holotype), on foliage of *Betula* sp. (Graham).

Chrysocharis (*Kratochviliana*) *truncatula* sp. n.

Female.—Head and thorax bright green to blue-green; frons below the fork mainly golden to coppery-golden, above the fork blue; petiole nearly black; gaster dorsally with green and golden-green reflections, ventrally black with a slight violet tinge. Antennal scape cream; pedicellus black, flagellum piceous, both with a weak bluish gloss. Coxae black with greenish and bronze reflections; legs otherwise cream (the fourth tarsal segment, pulvilli and claws faintly brownish). Tegulae testaceous with their hind margin fuscous; wings hyaline, venation brown. Length 1·35-1·5 mm.

Head.—Malar space very short, only about half the breadth of the antennal scape. Frons between antennal toruli and the fork moderately shiny, very finely but moderately strongly reticulate; frontal fork practically T-shaped; frons above the fork, and vertex, rather more shiny with very fine delicate alutaceous sculpture, with a fovea just in front of the median ocellus. Hind edge of vertex slightly ridged in the middle only. Ocelli in a triangle of 60°-70°. Antennae (fig. 22): combined length of pedicellus and flagellum much less than breadth of head, and slightly less than breadth of mesoscutum; pedicellus in profile slightly less than twice as long as broad; third anellus about one-third the length of the first funicular segment; funicle practically cylindrical, hardly stouter than the pedicellus, its segments (3) subequal in length, not or only slightly longer than broad, distinctly shorter than the pedicellus; clava 2-segmented, hardly broader than the funicle.

Thorax about 1·5 times as long as broad. Pronotal collar, except laterally, with a fine sharp margin, medially very narrow. Mesoscutum about 1·5 times as broad as long, moderately strongly convex, relatively shiny, its mid lobe rather coarsely reticulate (much more so than the scutellum), its side lobes more finely so. Scutellum slightly longer than broad, moderately convex, shiny, finely and delicately sculptured, the reticulation for the most part engraved, its areoles tending to be slightly lengthened in the longitudinal axis. Dorsellum wrinkled. Propodeum medially rather more than one-third the length of the scutellum, very finely and delicately reticulate, shiny, with a few longitudinal carinulae along the hind margin; at the base of the propodeum (medially) there is a subtriangular fovea with a raised margin; behind this fovea, in one specimen, there is a sharp fine median carina which extends to the hind margin, but in the other specimens the carina is indicated only by some irregular coarser sculpture; callus with two bristles. The petiolar foramen (fig. 14) is bordered by a fine carina, and the foramen itself is semicircular in outline. Anterior margin of mesepimeron slightly curved. Hind coxa rather finely and not strongly reticulate, its dorsal surface bare. Forewing somewhat less than twice as long as broad, cuneate (the apical margin subtruncate); costal cell broad, the row of hairs on its underside incomplete, restricted to the basal portion of the cell; basal vein pilose, speculum closed below; subcubital line of hairs not or hardly broken; marginal vein plus parastigma 6-6·5 times as long as the stigmal vein, the latter forming an angle of about 60° with the postmarginal vein, which is nearly 2·5 times the length of the stigmal vein.

Petiole with a narrow conical basal neck, behind this a slightly raised and reticulate (but only slightly expanded) portion. Gaster shortly oval, much shorter and slightly narrower than the thorax, 1·1-1·25 times as long as broad, obtusely pointed apically; last tergite much shorter than its basal breadth.

Male.—Unknown.

England: Buckinghamshire, Hell Coppice, near Oakley, 24.vi.1958, three females (one the holotype) beaten from foliage of *Salix cinerea* L. (Graham).

Type in the Hope Department, Oxford; paratypes in my own collection.

This species is evidently most nearly related to *assis* (Walker), which it resembles not only in its very short malar space, but in several other respects. It differs from the female of *assis* most obviously in the sculpture of the scutellum and propodeum. In *assis* the reticulation of the scutellum is distinctly raised above the general surface, whereas in *truncatula* the reticulation is delicate and for the most part engraved. In *assis* the propodeum (see Graham, 1959, fig. 12) has a characteristic strong T-shaped crest formed by the basal portion of the median carina which is intersected by a transverse ridge; in *truncatula* there is a subtriangular basal fovea which tends to be divided down the middle, and behind this a little irregular raised sculpture or (as in the specimen shown in fig. 14) a median carina which reaches the hind margin. In *assis* the frons below the fork is dull, and varies from brassy to golden-green, whilst above the fork it is only slightly shiny and brassy to bluish-green; in *truncatula* it is moderately shiny below the fork, with a golden to coppery-golden tint, quite shiny and blue above the fork. The fovea which is present on the frons in front of the median ocellus, is absent or hardly indicated in *assis*; the latter species is rather larger than *truncatula* (size 1·5-1·8 mm.).

Chrysocharis (*Kratochviliana*) *nitidifrons*, sp. n.

Female.—Frons above the fork, and vertex, greenish with brassy reflections; frons below the fork, face, and genae, purplish or purplish-brown. Antennae fuscous, scape brown. Venter and pleuron of thorax varied with purplish-bronze and purple; dorsum of thorax mainly purplish-bronze, the mesoscutum (except sometimes anteriorly and laterally), and the propodeum, green. Gaster green to brassy-green, the disc varied with brassy and coppery. Fore and mid coxae bronze, hind coxae tinged with purple and violet; legs otherwise pale yellowish with only the pulvilli and claws fuscous (the fore tibia usually brownish externally, occasionally the femora indefinitely brownish proximally). Wings subhyaline, the forewing usually faintly infumate discally; venation fusco-testaceous. Length 1·3-1·45 mm.

Head.—Malar space about equal to breadth of scape. Frons between toruli and the fork finely but moderately strongly reticulate, somewhat shiny; frontal fork forming a very obtuse angle; frons above the fork ± alutaceous immediately above the fork, otherwise very shiny and polished and without sculpture (or with at most traces of extremely weak alutaceous sculpture). Vertex polished, with traces of superficial alutaceous sculpture only, in places: the vertex is rounded off into the occiput, with a very slight trace of a ridge in the middle only. Ocelli in a triangle of 90°-95°. Antennae (fig. 21): combined length of pedicellus and flagellum much less than breadth of head, and hardly equal to the breadth of the mesoscutum; pedicellus somewhat less than twice as long as broad, as long as or slightly longer than the first funicular segment; third anellus rather more than one-third the length of the first funicular segment; funicle cylindrical, hardly stouter than the pedicellus, 3-segmented; first funicular segment about 1·7 times, second and third segments each 1·6-1·8 times, as long as broad; clava 2-segmented.

Thorax about 1·4 times as long as broad. Pronotum with a collar, which is very narrow medially, finely margined anteriorly. Mesocutum about twice as broad as long, somewhat coarsely reticulate discally, more finely laterally. Scutellum hardly longer than broad, somewhat coarsely reticulate dorsally, the reticulations distinctly raised above the general surface. Dorsellum about four times as broad as long, reticulate. Propodeum very shiny, weakly alutaceous medially, otherwise smooth, with several short longitudinal carinulae along its hind margin; median carina ± indicated in basal half, tending to fork distally; callus with two bristles. Anterior margin of mesepimeron almost straight (hardly curved forwards).

Hind coxae moderately shiny, with very fine reticulation which, however, is slightly raised above the surface; their dorsal surface bare. Forewing nearly twice as long as broad, its apex nearly evenly curved; costal cell not very broad, its underside with a short row of hairs in the basal half only; basal vein pilose, speculum closed below: subcubital line of hairs complete or hardly broken; marginal vein plus parastigma 6·7-7 times the length of the stigmal vein, the latter forming an angle of about 60° with the postmarginal vein, which is nearly twice as long as the stigmal vein.

Petiole short, conical, smooth or nearly so. Gaster ovate, slightly longer than and about as broad as the thorax, 1·5-1·9 times as long as broad, pointed apically (where the sides converge to form a slightly acute (occasionally a right) angle; last tergite only slightly transverse.

Male.—Differs from the female in having the head bronze-green with the vertex purplish-coppery tinged, the mesoscutum more bronzy-green; gaster with first tergite shiny and green, the following tergites purplish-bronze, alutaceous, and dull; forewing distinctly infumate discally; all femora infuscate over about their proximal two-thirds; antennae very slightly longer, with the scape (fig. 20) flattened and fusiform; gaster oblong-obovate, narrower than the thorax, narrow at the base but widening gradually to near the obtuse apex.

England: Berkshire, Bagley, one female emerged 1.iii.1923 from a cocoon of *Stigmella* (=*Nepticula*) *argyopeza* Zeller, the host larva having been found in November 1922 on aspen (*Populus tremula* L.) by E. G. R. Waters; one female emerged 12.iii.1923 from leaves of *Rubus fruticosus* containing blotch-mines of *Tischeria marginea* (Haw.) (Lep., Lyonetiidae), one female (the Type) emerged 15.iii.1923 (same data), one male and one female emerged 24.iii.1923 (same data). Lincolnshire, Woodhall Spa, 25.vii.1951, one female (Graham). Oxfordshire, Otmoor, 4.ix.1955, 29.viii.1956, two females (Graham). Ireland: Co. Wicklow, The Murrough, i.v.1950, two males (Graham).

Type in the Hope Department, Oxford; paratypes in my own collection.

This species on the whole most resembles *laricinellae* (Ratz.), from which it differs in having the scutellum not or hardly longer than broad, in its more extensively pale legs, and the contrasting colour of the scutellum as compared with that of the mesoscutum. The body (especially the thorax) is rather more squat than in *laricinellae.*

Chrysocharis (*Kratochviliana*) *novellus* (Walker)

Entedon Novellus Walker, 1839, *Mon. Chalciditum,* **1**: 55, ♀ (nec ♂).

Epilampsis novellus (Walker) Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 194.

There are four syntypes of this species in Walker's collection; a female bearing a circular label with serial number 38.4.5.182 is taken as lectotype.

New record:

England: Oxfordshire, Waterperry Wood, one female bred 9.iii.1923 from a case of *Coleophora viminetella* Zell.; the host larva found 22.x.1922 on sallow (E. G. R. Waters).

Chrysocharis (*Kratochviliana*) *nitetis* (Walker), comb. n.

Entedon Nitetis Walker, 1839, *Mon. Chalciditum,* **1**: 52, ♀.

Derostenus (*Chrysocharis*) *boops* Thomson, 1878, *Hym. Scand.,* **5**: 266 (*ex parte*).

Epilampsis boops (Thomson), Delucchi, 1954, *Mitt. Schweiz. ent. Ges.,* **27** (3): 302.

Entedon nitetis Walker: there are three syntypes and a specimen having a circular label with serial number 38.4.5.178 is taken as lectotype.

Derostenus boops Thomson: the syntypes, on 16 pins, comprise a mixed series. Some are the same as *nephereus* (Walker), others are *nitetis* (Walker), with possibly other species. No specimen has apparently been validated as lectotype, although the first in the series has been labelled as such by Dr. A. Jansson; it bears a pale green label "Hg." [Hälsingborg] and another "boops Ths.". This is evidently the specimen on which Delucchi (1954) based his interpretation of *boops.*

There has been some difference of opinion regarding the identity of *boops* Thomson. Delucchi (1954: 302) included it in his key to *Epilampsis*; he did not designate a lectotype, but as explained above, his interpretation was probably based on the specimen selected by Jansson. Erdös (1956, *Folia ent. hung.* (series nova), **9** (1): 2-3) discussed the question of *boops*; he stated that he had seen a female which had been compared by Jansson with the above specimen in Thomson's collection, but that he considered that this specimen disagreed with Thomson's description. Erdös was under the impression that Thomson's collection contained only this one specimen of *boops,* which is not the case (see remarks above on the syntypes). In the same paper Erdös goes on to mention another species which he considers to be the true *boops*; I have seen this and it is the same as *nautias* (Walker). However, Thomson's series of *boops* does not appear to contain any *nautias*!

Unfortunately I myself added to the confusion, for in my paper of 1959 (*Trans. Soc. Brit. Ent.,* **13** (10): 193) I interpreted *boops* as being a species [described here as *collaris,* sp. n.] characterized by a very broad pronotal collar. At that time I thought that this species with the broad collar was the same as the first specimen in Thomson's series of *boops,* which is not the case.

Chrysocharis (*Kratochviliana*) *pentheus* (Walker)

Entedon Pentheus Walker, 1839, *Mon. Chalciditum,* **1**: 38, ♂ [*recte* ♀].

Entedon Ergetelis Walker, 1848, *List Hym. Ins. Brit. Mus. Part 2. —Chalcidites. Additional Species*: 230, ♀, syn. n.

Epilampsis mirabilis Sundby, 1957, *Norsk ent. Tidsskr.*, suppl. 2: 40, syn. n.

Epilampsis pentheus (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 193.

There are four syntypes of *E. pentheus* Walker; a female has been labelled as lectotype. Only one female stands under the name *E. ergetelis*; it is taken as type. The writer has seen syntypes of *Epilampsis mirabilis* Sundby; a female which bears a small pink ticket is the holotype.

Chrysocharis (*Kratochviliana*) *nautias* (Walker)

Entedon Nautias Walker, 1846, *Ann. Mag. nat. Hist.*, **17**: 183, ♂ [*recte* ♀].

?*Epilampsis deciduae* Delucchi, 1954, *Neue Arten aus der Subfamilie der Entedontinae*: 3.

Chrysocharis boops Thomson, sensu Erdös, 1956, *Folia ent. hung.* (series nova), **9** (1): 3.

Epilampsis nautias (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 193, 194.

Entedon nautias Walker: only one specimen, a female in good condition, stands under this name; it is accepted as type. The following are new records:

England: Hampshire, Brockenhurst, 6.ix.1958, one female; Oxfordshire, Otmoor, 5. viii.1960, one female; both from foliage of *Quercus robur* L. (Graham).

Chrysocharis (*Kratochviliana*) *submutica* sp. n.

Epilampsis sp. A. Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 192, 196.

Female.—Green to blue-green; frons between antennal toruli and the fork purplish; vertex with slight golden or copper reflections. Antennae fuscous. Coxae concolorous with the thorax; remainder of legs cream to yellowish, usually with some or all of the femora ± darkened proximally (often about their basal half fuscous to black); fore tarsi somewhat infuscate, fourth segment of mid and hind tarsi slightly dusty; pulvilli and claws fuscous. Tegulae metallic. Wings hyaline, venation fuscous. Length, 1·2-1·7 mm.

Head.—Malar space about equal to breadth of scape. Frons, from toruli to level of median ocellus, finely though moderately strongly reticulate, rather dull; frontal fork forming a very obtuse angle; remainder of head extremely finely and delicately alutaceous, somewhat shiny. Vertex rounded off into the occiput.

Ocelli in a triangle of about 75°. Antennae (fig. 23): combined length of pedicellus and flagellum distinctly less than breadth of head; pedicellus somewhat less than twice as long as broad, as long as or slightly longer than the first funicular segment; third anellus about one-third the length of the first funicular segment; funicle 3-segmented, rather slender (proximally hardly stouter than the pedicellus, and hardly thicker distally), its segments not very dissimilar in length, the first about 1·5 times as long as broad, the third varying from quadrate to about 1·3 times as long as broad; clava 2-segmented. Sensilla of funicle and clava sparse.

Thorax about 1·7 times as long as broad. Pronotum with a shiny strip representing the collar, this strip extremely narrow medially, distinctly margined anteriorly in the middle in larger specimens, but immarginate in very small examples. Mesoscutum about 1·5 times as broad as long, moderately shiny, its mid lobe rather strongly but relatively finely reticulate, its side lobes more finely and delicately so. Scutellum (fig. 9) slightly longer than broad, rather finely reticulate with the sculpture slightly raised above the surface. Dorsellum about 2·5 times as broad as long, shiny, alutaceous or weakly reticulate. Propodeum medially about the length of the scutellum, shiny, nearly smooth laterally but delicately irregularly reticulate in the middle; median carina irregular or vague; callus with two bristles. Anterior margin of mesepimeron straight or nearly so. Hind coxae externally moderately shiny, with fine reticulation which is slightly raised above the surface; their dorsal surface bare.

Forewing rather narrow (slightly more than twice as long as broad), its apical margin evenly curved; costal cell rather narrow, its underside with an incomplete row of hairs which extends over about the basal half of the cell only; basal vein pilose, speculum closed below; subcubital line of hairs slightly broken medially; marginal vein plus parastigma 6·7-7·2 times the length of the stigmal vein, the latter forming an angle of about 55° with the postmarginal vein, which is hardly or only just twice as long as the stigmal vein.

Petiole inconspicuous, much shorter than the median length of the propodeum, conical, nearly smooth, its hind margin broadly emarginate. Gaster nearly or quite as long as the thorax, slightly broader than the latter, ovate, 1·5-1·8 times as long as broad, pointed apically (its sides converging to form a right, or slightly acute, angle); last tergite about half as long as its basal breadth.

Male.—Differs from the female as follows:

Frons not purplish; thorax slightly golden-tinged in parts; antennal scape more flattened and broader, flagellum with longer and more outstanding hairs; gaster oblong, narrower than the thorax, its apex obtuse. Length 1-1·1 mm.

England: Berkshire, Wytham Wood, 14.vii.1951, one female; 23.viii.1951, one male, one female; 2.ix.1951, two females;

20.ix.1951, one female; 30.ix.1951, one female; 3.viii.1952, two females; 17.viii.1952, one male, two females.

Holotype in the Hope Department, University Museum, Oxford; paratypes in the British Museum (Nat. Hist.) and in my own collection.

The female of *submutica* most resembles that of *elongata* (Thomson), from which it differs in its much shorter gaster and indistinctly margined pronotal collar; it also has the funicular segments of the antenna rather shorter, and the bristles of the vertex slightly longer, than in *elongata*.

subg. *Chrysocharis* Förster

Revised key to species

1. Costal cell of forewing with a complete row of hairs on its underside, extending to the apex of the cell. Petiole obviously longer than broad and at least slightly longer than the median length of the propodeum. Antennal flagellum with 5 well separated segments 2

— Costal cell of forewing with the row of hairs on its underside extending as most half way along the cell. Petiole often shorter than in the above. Antennal flagellum sometimes with 3 funicular segments and a 2-segmented clava 3

2. Dorsellum ("metascutellum") 2-2·5 times as broad as long, at least one-third the median length of the propodeum. Oral fossa ("mouth-opening") rather less broad, its breadth about three times the malar space, the latter nearly one quarter the length of an eye .... *chilo* (Walker)

— Dorsellum 5-6 times as broad as long, about one quarter the median length of the propodeum. Breadth of oral fossa about four times the malar space, the latter hardly one fifth the length of an eye .... *pubens* (Delucchi)

3. Gastral petiole about twice as long as broad, about as long as propodeum plus dorsellum, reticulate, parallel-sided in at least its hinder half, with 1-2 hairs laterally. Propodeum shiny, weakly reticulate. Flagellum of female with 3 funicular segments and a 2-segmented clava; of male with 5 well-separated segments. Dorsal surface of hind coxae with some hairs 4

— Petiole not longer than the propodeum and often shorter; often small, conical, and nearly smooth; if mainly reticulate then the reticulate portion is at most about 1·5 times as long as broad, and the propodeum is relatively strongly reticulate. Flagellum of female sometimes with 5-well-separated segments; of male sometimes with 3 funicular segments and a 2-segmented clava. Dorsal surface of hind coxae sometimes bare 5

4. Hind coxae metallic, or whitish at apex only; fore and mid-coxae varying from wholly white to wholly dark ....
melaenis (Walker)

— Hind coxae with at least their distal half white; fore and mid coxae white, or with at most a brownish spot at their bases .... *albula* Delucchi

5. Forewing: postmarginal vein about twice as long as the stigmal vein or rather more (in *subpolita* and *albicoxis* the postmarginal vein is slightly less than twice the stigmal vein, but in these species either the scutellum is ± purplish, or else the coxae are at least partly yellowish-white). 6

— Forewing: postmarginal vein varying from about as long, to about 1·5 times as long, as the stigmal vein. Coxae black with a metallic tinge; scutellum green to blue- or golden-green. (Petiole small, conical, smooth or with at most traces of weak sculpture posteriorly. Sculpture of scutellum delicate, engraved or (*idyia*) at most very slightly raised above the general surface). 17

6. Antennal flagellum with 5 well-separated segments in both sexes. Petiole weakly reticulate or smooth, about as long as propodeum and usually slightly longer than broad. Propodeum having its surface weakly reticulate or partly smooth; petiolar foramen ± semi-circular, without or with only a weak transverse keel immediately above it 7

— Antennal flagellum almost always with 3 funicular segments and a 2-segmented clava, and in one species the third funicular segment is so closely applied to the clava that the funicle is virtually 2-segmented; the presumed male of *liriomyzae* has 5 well-separated segments in the flagellum, but in this species the propodeum is rather strongly reticulate and has a strong transverse keel, marking off a trapeziform area, just above the petiolar foramen 8

7. Propodeal callus with 10-14 bristles. Forewing: postmarginal vein about 2·5 times as long as the stigmal vein. Breadth of oral fossa about five times the malar space, which is at most rather more than one-eighth the length of an eye. .... *amyite* (Walker)

— Propodeal callus with 4-7 bristles. Forewing: postmarginal vein about twice as long as the stigmal. Breadth of oral fossa about four times the malar space, which is relatively slightly longer than in *amyite* .... *naenia* (Walker)

8. Petiole mainly reticulate or wrinkled (only the small anterior neck being smooth); the reticulate portion is either somewhat piriform, or else ± rectangular (in the latter case the sculptured part varies from transverse to slightly elongate). 9

— Petiole small, conical, not or hardly longer than broad, smooth or with at most a trace of weak irregular alutaceous sculpture in its hinder portion 13

9. Petiole composed of an inconspicuous and smooth anterior neck, and a larger raised and expanded posterior portion which is ± rectangular, transverse to very slightly elongate, wrinkled or reticulate 10

— Petiole composed of an inconspicuous neck, behind which is a roughly piriform posterior portion which is hardly raised above the neck and tends to be slightly longer than broad, reticulate. Median area of propodeum finely, densely, and fairly uniformly reticulate 12

10. Scutellum purplish, the rest of the thoracic dorsum green to blue- or golden-green. Occiput ridged in middle only. Combined length of pedicellus and flagellum hardly less than breadth of head, the flagellum relatively rather slender ...... *phryne* (Walker)

— Scutellum coloured much like the rest of the thoracic dorsum (green to blue or golden). Combined length of pedicellus and flagellum somewhat less than breadth of head, the flagellum relatively slightly stouter 11

11. Occiput margined throughout, the sharp border extending right to the upper ends of the temple .... *polyzo* (Walker)

— Occiput ridged in the middle only .... *crassiscapus* (Thomson)

12. Occiput margined throughout (as in *polyzo*). Anterior margin of clypeus curved forwards. A sharp keel is present between the antennal toruli. Frons both above and below the fork very finely but strongly reticulate, the sculpture distinctly raised above the surface .... *liriomyzae* Delucchi

— Occiput slightly ridged in the middle only. Anterior margin of clypeus truncate. A convex boss is present between the antennal toruli. Frons above the fork weakly reticulate, almost alutaceous, the sculpture hardly raised above the surface .... sp. indet.

13. Forewing rather strongly subtruncate at apex, rather less than twice as long as broad. Oral fossa very broad (its breadth about 6 times the very short malar space). Scape, and legs except coxae, white .... *amanus* (Walker)

— Forewing rounded at apex, twice or somewhat more than twice as long as broad. Oral fossa much less broad (its breadth only 2-3 times the malar space). Scape ± brown or black, sometimes entirely so; femora often darkened; coxae sometimes partly pale 14

14. Scutellum with moderately coarse, stronger reticulation which is distinctly raised above the general surface; mesoscutum (especially its mid lobe) strongly and rather coarsely sculptured. Hind coxae externally strongly reticulate and relatively dull. Propodeum medially uneven, ± reticulate and wrinkled. Forewing about twice as long as broad; costal cell about 9 times as long as broad. Ocelli in a triangle of slightly more than 90° .... *pubicornis* (Zetterstedt)

— Scutellum with finer, more delicate sculpture which is hardly raised above the surface; mesoscutum with similarly delicate fine sculpture (that of its side lobes extremely fine). Propodeum, and hind coxae externally, usually more shiny and weakly sculptured (alutaceous). Forewing somewhat more than twice as long as broad; costal cell narrower (about 11-15 times as long as broad). Ocelli in a triangle of 90° or slightly less 15

15. External aspect of hind coxae less shiny and more distinctly reticulate. Thorax including scutellum green to blue. Coxae dark; femora sometimes ± darkened .... cf. *Kratochviliana submutica*

— External aspect of hind coxae more shiny, with very delicate alutaceous sculpture. Either the scutellum is ± purplish, or else the coxae are at least partly yellowish-white 16

16. All coxae black with a metallic tinge; at least the fore femora ± black, usually also the mid and hind ones either basally or mainly. Scutellum mainly to wholly purplish .... *subpolita* Erdös

— Coxae yellowish-white, or the hind ones (occasionally also the fore coxae) ± infuscate in their basal half; all femora yellow. Scutellum usually green, blue- or bronzy-green, occasionally faintly purplish discally .... *albicoxis* Erdös

17. Antennal flagellum of female with 3 funicular segments and a 2-segmented clava; of male with 5 well-separated segments. Sculpture of scutellum very slightly raised above the general surface. Costal cell of forewing broad (8-9 times as long as broad). Malar space in female one fifth length of eye or hardly more; oral fossa very broad (its breadth equal to the least distance between the eyes, and 4-5 times the malar space) .... *idyia* (Walker)

— Antennal flagellum of both sexes (figs. 24, 25) with the third segment closely applied to the clava, so that the funicle is virtually 2-segmented. Sculpture of scutellum engraved. Costal cell of forewing rather narrow. Malar space in female about twice breadth of scape, or rather more than one quarter the length of an eye; breadth of oral fossa hardly twice the malar space .... *chlorus* sp. n.

Chrysocharis (*Chrysocharis*) *melaenis* (Walker)

Entedon Melaenis Walker, 1839, *Mon. Chalciditum,* **1**: 47, ♂.

Entedon Thersamon Walker, 1839, *loc. cit.*: 48, "♂" [*recte* ♀], syn. n.

Entedon Bibulus Walker, 1839, *loc. cit.*: 62, ♀, syn. n.

Entedon Aso Walker, 1839, *loc. cit.*: 66, ♀, syn. n.

Entedon Tanis Walker 1839, *loc. cit.*: 73, ♂, syn. n.

Chrysocharis viridicoxis Förster, 1861, *Progr. Realsch. Aachen,* 1860-61: 38, "♂" [*recte* ♀], syn. n.

Derostenus punctiscapus Thomson, 1878, *Hym. Scand.,* **5**: 264.

Only one specimen stands under the name *melaenis* in the British Museum (Nat. Hist.); it is designated as type. Types have been selected for the other species-names but will be validated later.

In my concept of *melaenis* I include specimens with the fore and mid coxae white and the hind coxae narrowly white apically, as well as those with fore and mid coxae ± darkened, and those with all the coxae dark. All intergrades appear to be present as regards the colour of the coxae and I cannot find any structural distinctions between the colour forms.

Delucchi (1954, *Mitt. schweiz. ent. Ges.*, **27** (3): 292) treats the form with all coxae dark as a species (*viridicoxis* Förster) distinct from the form (*punctiscapus* Thomson) having the fore and mid coxae mainly or entirely white. The only structural difference between them is stated to be the size of the median basal excavation of the propodeum; this is said to be larger in *viridicoxis* than in *punctiscapus*. I fail to appreciate any reliable differences in this respect between the various colour forms here included under *melaenis*.

Chrysocharis (*Chrysocharis*) *albula* Delucchi

Chrysocharis albula Delucchi, 1954, *Neue Arten aus der Subfam. der Entedontinae*: 7.

I have British specimens which agree with the description of *albula* in having the hind coxae broadly white distally. In structure these specimens appear to be indistinguishable from *melaenis*, and it is noteworthy that Delucchi in his key (1954, *Mitt. schweiz. ent. Ges.*, **27** (3): 292) indicates only colour differences between *albula* and *punctiscapus* (=*melaenis*). However, *albula* is a rather distinct colour form and may for the present be kept separate. I have an Irish female (Co. Kildare, Royal Canal, 22.viii.1954) which has the distal half of the hind coxae white. This would seem to be outside the likely range of variation of *melaenis* because in general Irish specimens of many Chalcidoid species tend to be darker than English ones.

Chrysocharis (*Chrysocharis*) *amanus* (Walker), comb. n.

Entedon Amanus Walker, 1839, *Mon. Chalciditum*, **1**: 39, ♂ [nec ♀.]

Walker's syntypes of *amanus* in the British Museum (Nat. Hist.) comprise a mixed series of 3 specimens. The third specimen has been labelled, and is now designated, as lectotype; it agrees well with Walker's description of the supposed male, though it is actually female.

Haliday's collection contains a female (No. 1030), labelled "amanus", which is indicated as British and is evidently a Walker specimen. It is conspecific with the lectotype (and might have come from Walker's original series); I take it is confirmatory evidence of the identity of *amanus*.

I have seen no other material. Walker's original records were "near London; Wales; Scotland", but it is not stated in which of these localities the male was captured.

Chrysocharis (*Chrysocharis*) *subpolita* Erdös

Chrysocharis subpolita Erdös, 1958, *Acta zool. Acad. Sci. hung.*, 3 (3-4): 218.

Chrysocharis sp. A., Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 195.

New to Britain.

England: Berkshire, Wytham, 28.vii.1957, one female. Lincolnshire, Tetford Hill, 27.vii.1951, one female. Oxfordshire, Bald Hill, near Lewknor, 31.v.1958, one male, one female. All these specimens were swept by the author from the grass on chalk or other calcareous formations.

Hitherto recorded only (four females) from Hungary (Erdös, 1958).

Chrysocharis (*Chrysocharis*) *albicoxis* Erdös

Chrysocharis albicoxis Erdös, 1958, *Acta zool. Acad. Sci. hung.*, **3** (3-4): 217.

New to Britain.

England: Berkshire, Wytham, 15.vii.1959, one female. Oxfordshire, Bald Hill, near Lewknor, 18.vii.1957, one female. These were swept in the same kind of habitats as those noted above for *subpolita*.

Previously known only from the holotype female captured by Erdös in Hungary. Thanks to Dr. Erdös I have been able to compare my material of *subpolita* and *albicoxis* with his types.

Chrysocharis (*Chrysocharis*) *chlorus* sp. n.

Female.—Bright green to blue-green; frons between antennal toruli and the fork ±, sometimes the temples and parts of the thoracic pleurum, occasionally the vertex, bronzy. Antennae blackish. Coxae concolorous with the body; legs otherwise pale yellowish or whitish, with the fore tarsi mainly, and the fourth segment of the mid and hind tarsi, fuscous; fore tibia with a fuscous stripe externally; all the femora are usually ± broadly banded with black (sometimes only their apices pale) but vary to entirely pale. Tegulae black with a faint metallic tinge. Wings subhyaline (the forewing faintly greyish-tinged); Venation fusco-testaceous to fuscous. Length, 1·5-1·7 mm.

Head.—Malar space long, slightly more than one quarter the length of an eye and about twice the breadth of the antennal scape. Frons between toruli and frontal fork rather dull, finely reticulate with the sculpture hardly raised above the general surface; frons above the fork, vertex, and temples, rather shiny, with fine, for the most part engraved (alutaceous) sculpture; frontal fork forming an obtuse angle; vertex rounded off into the occiput. The head is usually ± collapsed so that the ocelli are displaced, but in undistorted specimens they form a triangle of about 90°. Antennae (fig. 24): combined length of pedicellus and flagellum slightly less than breadth of head, but hardly less than breadth of mesoscutum; pedicellus in profile about twice as long as broad, slightly longer than the first funicular segment; third anellus subquadrate, nearly half as long as the first funicular segment; flagellum slightly clavate, proximally about as stout as the pedicellus; first funicular segment about 1·6 times, second about 1·3 times, as long as broad; the three distal segments are, for convenience, regarded as forming the clava, although the first of them is separated from the other two by a strong constriction (though not by a peduncle); the clava as thus defined, is slightly broader than the funicle and (including its terminal spine) is about as long as the anelli plus the funicle.

Thorax about 1·7 times as long as broad, only moderately arched dorsally, the dorsellum and propodeum only moderately declived relative to the plane of the mesoscutum and scutellum. Pronotum without a collar, though with a rather smoother strip along its hind margin. Mesoscutum about 1·5 times as broad as long, only moderately convex, somewhat shiny; mid lobe with moderately fine, only slightly raised reticulation; side lobes with extremely fine engraved (alutaceous) sculpture. Scutellum slightly longer than broad, relatively shiny, with delicate engraved sculpture which is moderately fine on the disc, fine elsewhere. Dorsellum shiny, weakly alutaceous. Propodeum relatively long (medially nearly half the length of the scutellum), shiny, finely alutaceous; median carina either represented by a weak (though rather broad) ridge, or absent; plicae absent; callus with two (occasionally three) bristles; on each side there is a distinct tubercle above the supracoxal flange; petiolar foramen semicircular. Anterior margin of mesepimeron nearly straight. Forewing long but rather narrow (about 2·2 times as long as broad), its apex evenly rounded; costal cell rather narrow, the line of hairs on its underside confined to the proximal part of the cell; basal vein pilose, speculum closed below; marginal vein plus parastigma 5·5-6 times the length of the stigmal vein; postmarginal vein usually slightly longer than (occasionally only as long as) the stigmal vein, the latter forming an angle of about 60° with the postmarginal. Hind coxa with its dorsal surface bare; its external surface shiny, finely alutaceous (the sculpture hardly raised above the general surface).

Petiole.—Small, conical, smooth or nearly so. Gaster oval, almost as long as, and slightly broader than, the thorax, 1·4-1·7 times as long as broad, pointed at apex (the sides converging to form a right, or very slightly acute, angle); last tergite only about half as long as its basal breadth; ovipositor sheaths concealed in dorsal view.

Male.—Resembles the female, but has the antennae (fig. 25) very slightly longer, the scape more flattened and more obviously fusciform; the clava is thickly clothed with rather long silvery-grey hairs, so that the surface and the terminal spine are more or less hidden; the gaster is slightly narrower than the thorax, relatively narrow basally but gradually expanding to just before its obtuse apex; the malar space is somewhat longer (more than one-third the length of an eye).

Type in the Hope Department, Oxford; paratypes in the British Museum (Nat. Hist.) and in my own collection.

England: Berkshire, Bagley Wood, 31.vii.1954, one male, one female; Wytham, 14.vii.1951, one female; 21.v.1952, one female; 24.v.1952, one male, one female (the Type); 31.v.1952, two males; 4.vi.1952, one female; 9.vi.1952, one female; 12.vi.1952, one female. Buckinghamshire, Hell Coppice, near Oakley, 1.viii.1954, one male. Oxfordshire, Otmoor, 28.v.1957, one female.

The female of *chlorus* is remarkably like that of *idyia* (Walker) in colour, facies, and its short postmarginal vein, but is easily distinguishable by the antennal flagellum (which in *idyia* has three well-separated funicular segments and a two-segmented clava); it also has the malar space longer (in *idyia* this is hardly greater than the breadth of the scape, and only slightly more than one-fifth the length of an eye), the mouth-opening less broad (in *idyia* very broad, equal to the least distance between the eyes, and fully four times the malar space); the scutellum has engraved sculpture (in *idyia* very slightly raised); and the costal cell of the forewing is rather narrower (in *idyia* 8-9 times as long as its maximum breadth). The postmarginal vein in *idyia* is on the average rather longer than in *chlorus*.

Note.—Ch. chlorus may be only a race of *Chrysocharis imbrasus* (Walker), comb. n. (=*Entedon Imbrasus* Walker, 1847, *Ann. Mag. nat. Hist.* **20**: 22, ♀), described from Florida. The type female of *imbrasus,* in the British Museum (Nat. Hist.), is very close to the females of *chlorus* described above. It seems best however, to regard the two as distinct species until fresh material of *imbrasus* from the type locality is available for study.

On account of its short postmarginal vein and antennal structure, *chlorus* is virtually intermediate between *Chrysocharis* and *Neochrysocharis;* but on a balance of characters I think it best to place it in *Chrysocharis*.

Neochrysocharis Kurdjumov

Neochrysocharis clinias (Walker)

Cirrospilus Clinias Walker, 1838, *Ann. nat. Hist.,* **1** (6): 451, ♀.

Neochrysocharis clinias (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 198.

In the British Museum (Nat. Hist.) there is no material under the name *clinias*. The series of *Entedon clinius* Walker, however, contains a female labelled "Entedon Clinias" in Walker's handwriting; it agrees with the description of *Cirrospilus clinias* Walker and is now designated as lectotype of the latter. Clearly the specimen has been misplaced.

Confirmation is provided by a female (No. 1343) in Haliday's collection, which is labelled *clinias* and is conspecific with the lectotype.

New records:

England, Buckinghamshire, Hell Coppice, near Oakley, 22.vi.1952, several females (Graham).

Neochrysocharis arvensis sp. n.

Female.—Head bronze, the face below antennal toruli more or less greenish, the frons and vertex dull purplish-bronze. Gaster dorsally purplish-bronze with tergite 1 usually green, the proximal parts of tergites 5 and 6 sometimes greenish. Antennae blackish, the scape sometimes slightly paler at its extreme base. Coxae, and all femora except their tips, black with a metallic tinge; remainder of legs yellowish-white, except the fourth segment of all the tarsi which is fuscous; the rest of the fore tarsus is slightly brownish, whilst the fore tibiae have a brownish stripe. Length 1·1-1·2 mm.

Head.—Malar space one-third the length of an eye or even slightly more. Face and temples somewhat shiny, with fine alutaceous sculpture which is hardly raised above the surface. Frons below the fork only slightly shiny, with very fine slightly raised reticulation; above the fork it is dull, extremely finely reticulate with the sculpture hardly raised. Frontal fork forming an obtuse angle. Vertex sculptured like the frons above the fork; ocelli in an obtuse triangle. Occiput not ridged. Antennae (fig. 26): combined length of pedicellus and flagellum slightly less than breadth of head, but practically equal to that of the mesoscutum; pedicellus longer than the first funicular segment, about 1·5 times as long as broad; third anellus moderate-sized, much larger than the first and second; flagellum short, stout, fusiform; funicular segments very slightly transverse; first segment of the clava slightly transverse.

Pronotum without a collar, slightly shiny with very fine, only slightly raised reticulation. Mesoscutum about 1·6 times as broad as long, moderately convex, very finely reticulate (the reticulation distinctly raised, composed of subcircular areoles), with 4 bristles. Scutellum moderately convex, slightly longer than broad, with sculpture like that of the mesoscutum (but discally perhaps rather less fine). Axillae sculptured like the scutellum. Dorsellum relatively long (almost as long as the median length of the propodeum), about 2·5 times as broad as long, alutaceous and moderately shiny. Propodeum medially about one-third as long as the scutellum, moderately shiny, with very fine hardly raised sculpture; median carina and plicae absent; petiolar foramen semicircular; callus with two bristles, the tubercle at its hind corner hardly developed; supracoxal flange extremely narrow. Anterior margin of mesepimeron somewhat curved. Hind coxa externally shiny with moderately fine alutaceous (hardly raised) sculpture, its dorsal surface bare. Forewing slightly more than twice as long as broad, its apical margin evenly curved; costal cell narrow, its underside with a row of hairs at the base only; basal vein pilose, speculum rather small, closed below; subcubital line of hairs very widely broken medially; disc of wing moderately densely haired; marginal vein plus parastigma 5-5·5 times the length of the stigmal vein; postmarginal vein about equal in length to the stigmal; fringe of apical margin very short (one-third to nearly half the length of stigmal vein). Hindwing slightly pointed at apex; postmarginal space rather less than twice the length of the marginal vein; longest fringe one-third the breadth of the wing or slightly more.

Petiole small, inconspicuous, smooth. Gaster ovate, about as broad as but somewhat longer than the thorax, 1·7-1·8 times as long as broad, acute and very slightly acuminate apically; tergite 1 occupying slightly more than a quarter of the total surface; last tergite rather more than half as long as its basal breadth; tips of ovipositor sheaths just visible. The dorsal surface of the gaster is alutaceous and only moderately shiny; on the middle tergites the sculpture is quite strong, and slightly raised.

Male.—Unknown.

England: Berkshire, Wytham, 13.vi.1959, one female; 20.vi.1959, three females (one the holotype), all swept on calcareous grassland at the edge of Wytham Wood (Graham).

Type in the Hope Department, University Museum, Oxford; paratypes in my own collection.

This species is very close to *trifolii* Erdös (1961, *Ann. hist.-nat. Mus. Nat. hung., pars zoologica,* 53: 481) of which, thanks to the kindness of Dr. Erdös, I have been able to examine paratypes. The female of *N. trifolii* differs in having the frons and vertex greenish; the thorax of a rather duller green, the gaster mainly greenish, the tibiae slightly infuscate; scape rather more slender; funicle not stouter than the pedicellus, its segments quadrate or even very slightly elongate; first segment of clava quadrate; frons, vertex, and occiput moderately shiny and rather less finely sculptured; mesoscutum and scutellum slightly more shiny, their sculpture rather weaker; scutellum not longer than broad; dorsellum short and strongly transverse (about 5 times as broad as long); postmarginal vein thinner and somewhat shorter than the stigmal vein; gaster slightly shorter and broader, the alutaceous sculpture of its dorsal surface weaker.

Achrysocharis Girault

Achrysocharis smaragdula sp. n.

Female.—Body bright green with golden reflections; gaster with some coppery reflections on the disc; face brassy tending towards coppery in places, lower part of temples and frons sometimes brassy-tinged. Antennae blackish, the scape and pedicellus with a metallic gloss; scape sometimes brown proximally.

Coxae concolorous with the thorax, or sometimes slightly violet-tinged; trochanters partly fuscous, partly pale; femora fuscous with a metallic gloss, except their tips which, as well as the tibiae and tarsi, are yellowish-testaceous; the fore tibia is slightly brownish at the base, and the hind tibia is broadly but rather indefinitely fuscous-banded before the middle; pulvilli and claws fuscous. Tegulae testaceous with their hind margins fuscous. Wings hyaline, veins fusco-testaceous. Length 1·6-1·7 mm.

Head.—Malar space slightly less than one-third the length of an eye. Face moderately shiny, very finely alutaceous (the sculpture not or hardly raised). Temples shiny, their sculpture fine and hardly raised, composed of elongate areoles. Frontal fork forming a very obtuse angle (the two arms nearly in a straight line). Frons below the fork moderately shiny, with fine slightly raised reticulation; above the fork, duller and rather more finely reticulate. Vertex rounded off into the occiput, with sculpture similar to that of the frons above the fork (but rather more shiny). Ocelli in a triangle of 105°-110°. Eyes with very short but moderately thick pubescence. Antennae (fig. 27): combined length of pedicellus and flagellum slightly less than breadth of head, but equal to that of the mesoscutum; pedicellus about twice as long as broad, slightly shorter than, or barely equal to, the first funicular segment; first anellus discoid, second slightly larger than first; flagellum rather slender (although a little stouter than the pedicellus), nearly filiform, only the clava tapering; first funicular segment about twice as long as broad, second subequal to the first; clava distinctly 3-segmented, tapering, including its terminal spine about 4·5 times as long as broad, fully as long as the funicle. Sensilla of flagellum sparse.

Thorax somewhat flattened dorsoventrally, about 1·5 times as long as broad in dorsal view. Pronotum finely densely reticulate and rather dull, without a collar. Mesoscutum about 1·7 times as broad as long, weakly convex, rather dull, finely densely reticulate (especially anteriorly and laterally), the reticulation slightly raised; mid lobe with 2 bristles in its hinder half. Scutellum weakly convex, about as broad as long, its sculpture like that of the mesoscutum; axillae with similar sculpture. Dorsellum reticulate like the scutellum, but very finely. Propodeum strongly transverse, hardly one-third as long as the scutellum, somewhat shiny, finely and delicately reticulate (the sculpture hardly raised); median carina and plicae absent; petiolar foramen semicircular or subtriangular; supracoxal flange extremely narrow; callus with two bristles, and with a tubercle at its hind corner. Anterior margin of mesepimeron very strongly curved (almost angulate in the middle). Hind coxae with their external surface shiny, the sculpture delicate and engraved or hardly raised; their dorsal surface bare. Forewing twice as long as broad or hardly more, its apical margin subtruncate; costal cell narrow, its underside with a row of hairs in the basal half only; basal vein pilose, speculum broad, closed below; subcubital line of hairs very widely broken medially; "radial cell" bare; marginal vein plus parastigma 6-7 times as long as the stigmal vein; postmarginal vein tapering, approximately equal in length to the stigmal vein, the latter forming an angle of about 60° with the postmarginal, and with a relatively large stigma.

Hindwing pointed at apex, its fringe one-third the breadth of the wing or hardly more.

Petiole inconspicuous, subconical, nearly smooth, its hind edge semicircularly emarginate. Gaster ovate, about as long as or slightly longer than the thorax, very slightly wider than the latter, 1·5-1·7 times as long as broad, pointed apically (its sides converging to form a right, or slightly acute, angle); tergite 1 occupying about one-quarter of the total length; last tergite hardly half as long as its basal breadth; ovipositor concealed in dorsal view. The dorsal surface of the gaster is mainly alutaceous, only the disc of tergites 1-3 and of the last tergite being smoother; on the middle tergites the sculpture is slightly raised (almost reticulate).

Male.—Unknown.

England: Buckinghamshire, Hell Coppice, near Oakley, 26.vii.1953, one female; 8.viii.1954, two females (one the Type), beaten from foliage of *Quercus robur* L. (Graham).

Type in the Hope Department, University Museum, Oxford; paratypes in my own collection.

The female of *smaragdula* differs from that of *lanassa* (Walker) in having the body (especially the thorax) more strongly sculptured and duller; the mid lobe of the mesoscutum has only 2 (instead of 4 or 6) bristles; the antennal flagellum is less slender and its bristles are shorter and less strongly outstanding; the first funicular segment is longer (in *lanassa* at most about 1·5 times as long as broad, much shorter than the pedicellus); the forewing is shorter and broader (in *lanassa* nearly 2·5 times as long as broad, see fig. 57) and lacks the infumate band below the stigma which occurs in *lanassa*.

Asecodes Förster

Asecodes hyperion sp. n.

Female.—Head black with bronze reflections upon the face and the frons below the fork; frons above the fork greenish-blue; the rest of the head with weak bluish reflections. Thorax black with bluish reflections; posterior two-thirds of scutellum, and the propodeum, brighter greenish-blue. Gaster bronze-black, with greenish-blue reflections at its base and apex. Antennae blackish. Mandibles reddish. Legs blackish with a faint metallic gloss, the hind coxae violet-tinged; mid and hind tarsi testaceous with their fourth segment and the pretarsi fuscous. Tegulae blackish. Wings hyaline, venation light fuscous. Length 1·5-1·55 mm.

Head.—Malar space nearly half the length of an eye, fully three-quarters the transverse diameter of an eye. Antennal scape about 3·5 times as long as broad, slightly shorter than an eye (17·5: 20·5); combined length of pedicellus and flagellum slightly less than breadth of head; pedicellus (in dorsal view) about 1·5 times as long as broad and slightly shorter than the first funicular segment; funicle viewed in profile of about uniform breadth throughout and slightly broader than the pedicellus, its first segment about 1·7 times as long as broad, second segment very slightly shorter than the first, third slightly shorter than the second and about 1·5 times as long as broad; clava tapering, including its terminal spine slightly shorter than funicular segments 2 plus 3.

Thorax about 1·6 times as long as broad. Mesoscutum rather shiny, with extremely delicate alutaceous sculpture. Scutellum polished, without sculpture except for an alutaceous patch on each side in the anterior half. Propodeum about four times as broad as its median length.

Forewing very similar to that of *mento* Walker (fig. 29), its disc relatively sparsely haired; longest fringe of apical margin about one eleventh the breadth of the wing. Hindwing blunt at apex, its longest fringe rather more than one quarter the breadth of the wing at the level of the hamuli.

Gaster (fig. 28) long-ovate, slightly longer than head plus thorax, slightly broader than the thorax, about twice as long as broad, acute at apex; last tergite triangular, about as long as its basal breadth; ovipositor sheaths exserted to a length about equal to that of the first segment of the hind tarsus.

Male.—Not definitely associated.

England: Berkshire, Wytham, 30.v.1953, one female swept in a meadow between Wytham Wood and the river Isis (Graham), Middlesex, Hampton, 9.vi.1962, one female (Bouček). England, unlocalized, one female (the holotype) in Walker's collection (British Museum (Nat. Hist.)) under the name *Entedon tegar* Walker. Czechoslovakia, Chuchle, near Prague, 10.vi.1957, two females (Bouček).

Type in the British Museum (Nat. Hist.); paratypes in my own collection and in that of Dr. Bouček.

The female of *hyperion* closely resembles that of *mento* (Walker) but differs as follows:

Gaster longer and acute apically (in *mento* (fig. 30) almost circular, shorter than or at most as long as the thorax, subobtuse apically, with the last tergite very short and transverse, the ovipositor sheaths concealed in dorsal view). Thorax slightly more elongate; scutellum smoother (in *mento* the proximal two-thirds normally has delicate alutaceous sculpture). Antennal scape slightly broader (in *mento* 4-4·5 times as long as broad); flagellum a little shorter and stouter with its segments slightly shorter than in *mento*. Knees dark (in *mento* narrowly pale).

In my Key to the British species of *Asecodes* (Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 199) the new species would run to couplet 4(1) and *mento.* The latter name should be deleted from the couplet in question, and the following added:

5 (6) Gaster of female almost circular, shorter than or at most as long as the thorax, subobtuse apically; last tergite very short and transverse; ovipisitor sheaths concealed in dorsal view .... *mento* (Walker)

6 (5) Gaster of female long-ovate, slightly longer than head plus thorax, about twice as long as broad, acute apically; last tergite about as long as its basal breadth; ovipositor sheaths slightly exserted, their tips visible in dorsal view .... *hyperion* sp. n.

As noted above, the type of *hyperion* sp. n. is a specimen standing under the name *Entedon tegar* Walker. I considered the possibility that it might be the type of *tegar* but decided that this was not so, because it disagrees with Walker's description (1839, *Mon. Chalciditum* **1**: 28) of that species. A second specimen (belonging to a different genus) also stands under the name *tegar,* and I consider it to be the type.

Omphale Haliday

Omphale Haliday, 1833 (July), *Ent. Mag.,* **1**: 339.

Smaragdites Westwood, 1833 (Sept.), *Ann. Mag. nat. Hist.,* **6**: 419.

Secodes Förster, 1856, *Hym. Studien,* Heft **2**: 78, 81.

The genus *Omphale* was described with one included species, *O. salicis* Haliday, which automatically becomes the type (it was further designated as such by Haliday (1833, *Ent. Mag.,* **1**: 340)). *Smaragdites* Westwood was also described with one included species, *admirabilis* Westwood. *Omphale salicis* Haliday was placed in synonymy with *Smaragdites admirabilis* Westwood by Walker (1846, *List Hym. Ins. Brit. Mus. Part 1.—Chalcidites*: 65). I have examined the respective types of these two species (contained in the Haliday and Westwood collections) and found that they are not conspecific, although in my opinion they are congeneric. The generic name *Smaragdites* must threfore be placed in synonymy with *Omphale* Haliday, which has priority. *Secodes* Förster was described by him in his key to the genera of Entedontoidae (1856, *Hym. Studien, Heft* **2**: 78) and (*loc. cit.*: 81) one species, *S. fagi,* was included although not described apart from the statement that it had been reared " . . . aus den Kegelförmigen Gallen von Buchenblättern . . .".

Key to the British and Swedish species

(*Females*)

1. Clypeus entirely yellow, almost flat, its anterior margin nearly truncate. The whole of the lower face, and the frons below the fork, uniformly and finely densely reticulate (the areoles

forming the reticulum are ± circular). Antennal flagellum black, subclavate; funicle 2-segmented, the third segment being closely united with the clava (which is thus 3-segmented); the clava slightly broader than the funicle and well-defined, its segments closely applied to each other. (Forewing: speculum open below; the row of underside admarginal bristles irregular, most of the bristles arising from the wing-membrane; radial cell tending to be ± bare; stigma rhomboidal, rather large (nearly as in *navius,* fig. 34); postmarginal vein subequal in length to stigmal vein. Body mainly green to blue-green. Gaster ovate, as long or very slightly longer than head plus thorax). .... *clypealis* (Thomson)

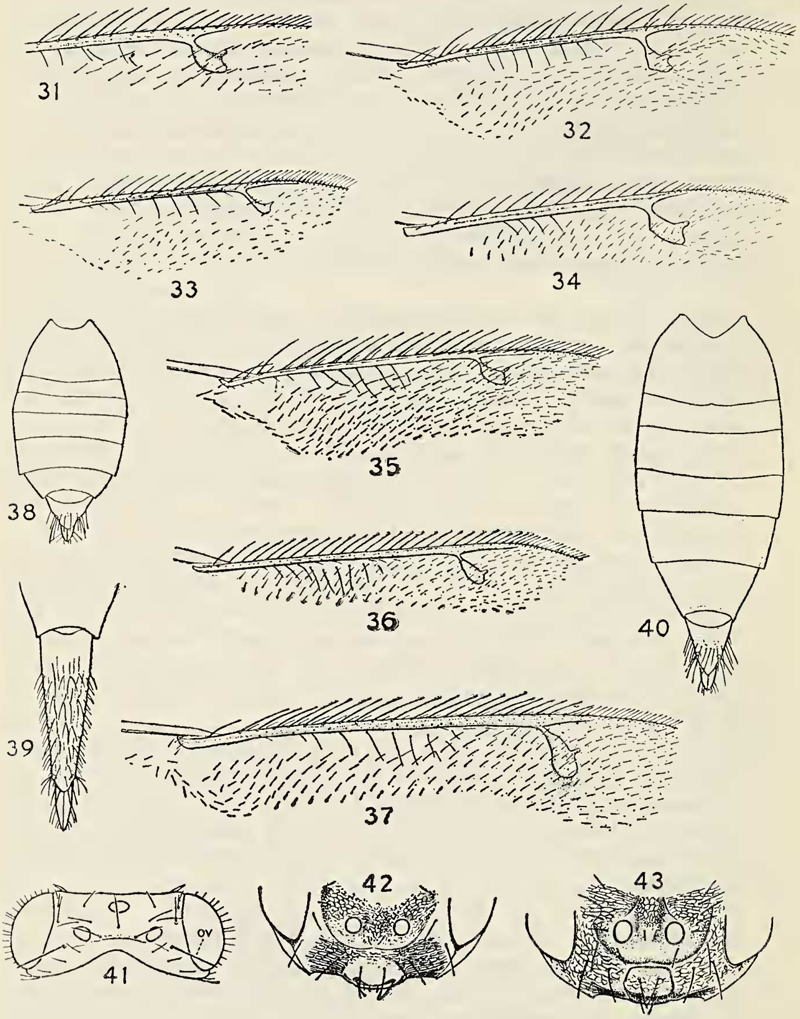
— Clypeus having its anterior margin curved forwards and often ± reflexed; except in *matrana* Erdös the clypeus is black with a metallic tinge. The whole face and frons below the fork are not uniformly sculptured; the face between the lower corner of the eye and the clypeus is either weakly sculptured and relatively smooth, or else it has a patch of strigose-reticulate sculpture. Antennal flagellum usually subfiliform, rarely very slightly clavate; normally the flagellum is differentiated into a 3-segmented funicle, and a 2-segmented clava which has its segments clearly marked off by a constriction; but in *navius* the third funicular segment is rather less distinctly separated from the clava than in the other species. Forewing: speculum closed below except in *clymene* and *versicolor* (which have the postmarginal vein longer than the stigmal vein) and in *aceris* (which has the flagellum pale distally) 2

2. Forewing (figs. 31-35): the row of underside admarginal hairs (pointing towards the disc of the wing) with all, or nearly all, its hairs arising from the lower edge of the marginal vein; radial cell usually mainly bare and as a rule more or less delimited below by a line of hairs which proceeds distad from the stigma 3

— Forewing (figs. 36, 37): the row of underside admarginal hairs irregular (sometimes partially double), some or most of its hairs arising from the wing-membrane distinctly below the marginal vein; radial cell almost always hairy (sometimes ± bare in *admirabilis*) and not delimited below by a distinct line of hairs 16

3. Gaster lanceolate, 1·5-2·5 times as long as the thorax; last tergite 1·7-4 times as long at its basal breadth, with its posterior part longitudinally wrinkled or striate. Legs slender; spur of mid tibia not or only just half the length of the first tarsal segment, the latter slender and one third as long as the tibia 4

— Gaster shortly ovate to ovate-lanceolate, at most about 1·5 times as long as the thorax but usually less; last tergite at most very slightly longer than it basal breadth, its posterior



Figs. 31-43.—31, *Omphale salicis* Hal., ♀, forewing venation; 32, *O. chryseis* sp. n., ♀, forewing; 33, *O. brevis* sp. n., ♀, forewing; 34, *O. navius* (Walker), ♀, forewing; 35, *O. rubigus* (Walk.), ♀, forewing; 36, *O. aetius* (Walk.), ♀, forewing; 37, *O. telephe* (Walk.), ♀, forewing; 38, *O. varipes* (Thoms.), ♀, gaster; 39, *O. salcis* Hal., ♀, tip of gaster; 40, *O. aetius* (Walk.), ♀, gaster; 41, *O. erginnus* (Walk.), ♂, head, *ov*, outer vertical bristle; 42, *O. telphe* (Walk.), ♀, lower part of head in front view; 43, *O. aetius* (Walk.), ♀, ditto.

part not obviously wrinkled or striate. Legs relatively shorter and stouter; except in *matrana* the spur of the mid tibia is fully two-thirds the length of the first tarsal segment and the latter is less than one-third as long as its tibia 7

4. Last tergite of gaster 2·7-4 times as long as its basal breadth; gaster 2-2·5 times as long as the thorax 5

— Last tergite of gaster 1·7-2·3 times as long as its basal breadth; gaster 1·7-1·9 times as long as the thorax. (Forewing 2·5-2·6 times as long as broad) 6

5. Body strongly metallic, deep green, with at most a patch on the mesopleuron beneath the base of the forewing testaceous, and sometimes the distal half of the ventral surface of the gaster is brownish along the median line. Forewing narrow, 2·8-3 times as long as broad; 6-12 admarginal bristles; marginal vein plus parastigma 6·5-8 times as long as the stigmal vein .... *salicis* Haliday

— Parts of the propleuron and prosternum, postspiracular sclerite (= "prepectus"), and often the sides of the scutellum and the mesosternum, brownish-testaceous; gaster ± brownish-testaceous, with only a weak metallic gloss. Forewing 2·5-2·6 times as long as broad; 3-5 admarginal bristles; marginal vein plus parastigma 5·5-7·2 times as long as the stigmal vein .... *theana* (Walker)

6. Prosternum, postspiracular sclerite, and mesopleuron more or less, testaceous; gaster ventrally brown, its base and apex (but not the ovipositor sheaths) testaceous; the rest of the body metallic. Forewing with 3-5 admarginal bristles (bristles arising from the parastigma are not counted) .... *radialis* Thomson

— Body metallic dark green, with at most a patch on the mesopleuron below the base of the forewing testaceous; gaster ventrally metallic, its base and apex not obviously pale. Forewing with 6-8 admarginal bristles, excluding those which arise from the parastigma (fig. 32) .... *chryseis* sp. n.

7. [Head, at least the sides and venter of the thorax, and the gaster ± extensively yellowish or testaceous. First segment of mid tarsus one-third the length of its tibia. Forewing as in *chryseis* sp. n. (fig. 32), but marginal vein plus parastigma only about 4-4·5 times as long as the stigmal vein; with only 3-5 admarginal bristles. Antenna: combined length of pedicellus and flagellum only slightly greater than breadth of head; first funicular segment not longer than the pedicellus, fourth about 1·5 times as long as broad. (Hungary.) .... *matrana* Erdös]

— Head, thorax, and gaster metallic, with at most the sutures of the face, the upper angle of the mesopleuron, and the petiole of the gaster, yellowish. First segment of mid tarsus from one-quarter (in most species) to slightly less than one-third the length of its tibia. Forewing venation sometimes otherwise. Antennal flagellum and funicular segments sometimes longer 8

8. Forewing: speculum open below; postmarginal vein about twice as long as the stigmal vein; only 3-5 admarginal bristles, which arise from about the middle third of the marginal vein plus parastigma; marginal vein plus parastigma 5·5-6 times as long as the stigmal vein. (Antennal flagellum fuscous, relatively short, the first funicular segment not or hardly longer than the pedicellus. Gaster lanceolate, about as long as head plus thorax .... *clymene* (Walker)

— Forewing: speculum closed below except in *aceris*, which has the postmarginal vein hardly longer than the stigmal vein, the flagellum yellowish to whitish distally (last 3 or 4 segments), and the gaster ovate, not longer than the thorax ... 9

9. [Antennal flagellum pale distally (the last 3 or 4 segments yellowish to whitish). Forewing: speculum open below; postmarginal vein hardly longer than the stigmal vein. Legs (except sometimes the bases of the coxae) and wing-venation mainly, pale yellow. (Gaster ovate, at most as long as the thorax; body squat; venation rather like that of *navius*, fig. 34, but pale yellow (Hungary) .... *aceris* (Erdös)]

— Antennal flagellum unicolorous, fuscous to black. Forewing: speculum closed below; postmarginal vein sometimes longer than the stigmal vein. Legs often ± extensively infuscate or mainly black, if as extensively pale as in the above, then more testaceous in hue; wing-venation testaceous to fuscous. Gaster often relatively longer 10

10. Bristles of vertex, mesoscutum, and scutellum, unusually long: length of the outer vertical bristle (fig. 41, ov) equal to the distance between the hind ocelli; mid lobe of mesoscutum with 4 about equally long bristles, the hinder pair separated by less than their own length. The grooved line which separates the mesepimeron from the mesopleuron is straight or even very slightly curved *backwards*. Vertex virtually smooth, with a transverse ridge behind the ocelli; frons above the fork smooth except for some very weak alutaceous sculpture anteriorly. Forewing: radial cell hairy, or bare at extreme base only. Mid lobe of mesoscutum tending to have a raised longitudinal ridge, or a ridge divided by a groove, in its hinder half. Body mainly coppery-bronze; legs mainly testaceous; gaster lanceolate ....
erginnus (Walker)

— Bristles of vertex, mesoscutum, and scutellum, shorter; length of the outer vertical bristle at least somewhat less than the distance between the hind ocelli; the two hinder bristles of the mesoscutum are separated by a distance equal to or greater than their length; the anterior bristles are often shorter than the hinder ones, whilst one or both may sometimes be absent. The grooved line separating the mesepimeron from the mesopleuron is at least slightly curved forwards. Vertex (except in *rubigus*) at least partly alutaceous and lacking a transverse ridge. Forewing: radial cell ± bare, usually mainly so. Mid lobe of mesoscutum without a longitudinal ridge 11

11. Frons above the fork, and the vertex, polished and without sculpture; hind edge of the vertex (at least over the middle third) with a fine margin or sharp edge which separates it from the occiput; head usually not collapsed after death. Mesoscutum: notauli more distinctly impressed than in the other species, narrow and quite sharp medially, broadening somewhat posteriorly but still well-defined both on their inner and outer edges. Forewing (fig. 35): marginal vein plus parastigma 7-8 times as long as the stigmal vein; admarginal bristles fairly numerous .... *rubigus* (Walker)

— Frons above the fork, and the vertex more or less (at least in the ocellar triangle) alutaceous or reticulate; hind edge of vertex not marked off from the occiput by a true margin, although when (as often happens) the head is collapsed, a fold which produces a sharp edge may occur. Mesoscutum: notauli at most sharp and narrow in front, behind this forming relatively shallow and poorly-defined foveae. 12

12. Forewing (fig. 34): stigma large, oblong, oblique, abruptly constricted at its base; marginal vein plus parastigma only 4·5-5·2 times as long as the stigmal vein; only 3-5 admarginal bristles, which arise from the middle third of marginal vein plus parastigma. Antennae very short (combined length of pedicellus and flagellum in female hardly equal, in male about equal, to breadth of head), first funicular segment not or only very slightly longer than the pedicellus. Body squat, mainly bluish-black, with some greenish areas; legs mainly to almost wholly black .... *navius* (Walker)

— Forewing (fig. 33): stigma smaller, broadest nearer its apex and narrowing more gradually to its base; marginal vein plus parastigma 5-7·2 times as long as the stigmal vein; 5-10 admarginal bristles. Antennae longer (pedicellus plus flagellum at least slightly greater than breadth of head); first funicular segment sometimes distinctly longer than the pedicellus. Body usually more brightly metallic, legs usually more extensively pale 13

13. Gaster shortly ovate, not or hardly longer than the thorax, 1·2-1·6 times as long as broad in dorsal view. Body squat. Forewing (fig. 33): postmarginal vein 1·5-2 times as long as the stigmal vein .... *brevis* sp.n.

— Gaster at least as long as head plus thorax, 1·9-2·6 times as long as broad in dorsal view. Body more slender. Postmarginal vein often shorter. 14

14. Antenna: first funicular segment not or hardly longer than the pedicellus and about twice as long as broad; funicular segments ventrally with bristles arising from near their bases

only, on segments 1-3 these bristles reach at least slightly beyond the apices of the segments .... *phruron* (Walker)

— Antenna (fig. 45): first funicular segment 1·25 times to nearly twice as long as the pedicellus and 2·5-4·5 times as long as broad; funicular segments ventrally with two sets of bristles (subbasal and subapical), on segments 1-3 the subbasal bristles reach at most to the apices of the segments. 15

15. Antenna: first funicular segment 1·25-1·4 times the length of the pedicellus and 2·5-3·5 times as long as broad. Forewing: marginal vein plus parastigma 5·8-7·2 times as long as the stigmal vein; postmarginal vein from hardly longer than, to about 1·5 times as long as, the stigmal vein. All coxae dark at the base and testaceous distally .... *nitens* sp. n.

— Antenna (fig. 45): first funicular segment 1·6 times to nearly twice the length of the pedicellus and 3·5-4·5 times as long as broad. Forewing: marginal vein plus parastigma 7-8·5 times as long as the stigmal vein; postmarginal vein 1·5-2 times as long as the stigmal vein. Fore coxae black or fuscous; mid and hind coxae often entirely testaceous, sometimes ± infuscate .... *connectens* sp. n.

16. Prosternum (sometimes also the postspiracular sclerite and the lower part of the side of the pronotum) and the legs including all the coxae, clear citron-yellow. Forewing: postmarginal vein about twice as long as the stigmal vein; speculum usually closed below (sometimes partly open); radial cell often ± bare. Body brilliant green, the vertex and the thorax often golden tinged ...... *admirabilis* (Westwood)

— Prosternum, postspiracular sclerite, and pronotum black, usually with a metallic tinge. Legs usually testaceous or ± infuscate (in some *versicolor* almost wholly citron-yellow, but this species has the speculum of the forewing open below, the radial cell hairy, and the postmarginal vein only about 1·5 times the length of the stigmal vein) 17

17. Forewing: speculum open below.
Face between lower corner of eye and the clypeus with rather sharp strigose-reticulate sculpture (fig. 42). (Postmarginal vein distinctly longer than the stigmal vein. Body with bright green, golden, and purplish tints; legs fulvous or yellow, with at most the tips of the tarsi, and the bases of the hind coxae dark. Spur of mid tibia only about half the length of the first tarsal segment) ....
versicolor (Nees) Thomson

— Forewing: speculum (fig. 37) closed below. Either the face between lower corner of eye and the clypeus is nearly smooth or with very weak sculpture as in fig. 43; or (*telephe* Walker) the postmarginal vein is not longer than the stigmal vein. Spur of mid tibia usually about three-quarters the length of the first tarsal segment 18

18. Forewing (fig. 37): postmarginal vein nearly always slightly shorter than (occasionally as long as) the stigmal vein. Face between the lower corner of the eye and the clypeus with rather sharp strigose-reticulate sculpture (fig. 42). Anterior margin of metapleuron nearly straight in its middle .... *telephe* (Walker)

— Forewing (fig. 36): postmarginal vein as long as, or longer than, the stigmal vein. Face between the lower corner of the eye and the clypeus with at most a little weak sculpture as in fig. 43, sometimes nearly smooth except for the hair-pits. Anterior margin of metapleuron distinctly (sometimes quite strongly) curved forwards 19

19. Gaster in dorsal view twice or slightly more than twice as long as the thorax, about four times as long as broad; last tergite 1·5-2 times as long as its basal breadth, the posterior two-thirds of its surface thickly hairy, the hairs arising from somewhat elongated warts which give the surface a rough appearance. Legs long and very slender; tarsi only slightly shorter than their tibiae; fore tarsus with its first segment as long as the second; first segment of mid tarsus slightly more than one quarter the length of the mid tibia; spur of mid tibia half as long as the first tarsal segment. Each side lobe of the mesoscutum has three bristles, one of them placed anteriorly somewhat behind the prothoracic spiracle. Body bronze-black; legs mainly dark .... *aethiops* sp. n.

— Gaster (except in some *acamas*) distinctly less than twice as long as the thorax, with its last tergite less than 1·5 times as long as basally broad and less conspicuously hairy (in *acamas* both the last tergite and the preceding one are less hairy than in *aethiops,* whilst the face, frons below the fork, and the dorsum of the thorax, are greenish). Tarsi relatively shorter (usually about two-thirds the length of their corresponding tibiae); first segment of fore tarsus usually slightly shorter than the second; first segment of mid tarsus at most one quarter the length of the mid tibia; spur of mid tibia usually more than half as long as the first tarsal segment. Each side lobe of the mesoscutum normally has two bristles only, placed in the hinder half of the sclerite. Body sometimes ± greenish; legs sometimes paler. 20

20. Antennae (fig. 48): funicular segments ventrally with only one set of bristles which arise from near the bases of the segments and (on segments 1-4 or 2-4) reach distinctly beyond their apices; segment 4 less than twice as long as broad, closely united with 5 so as to form a solid clava. The antennae are short (combined length of pedicellus and flagellum distinctly less than that of marginal vein plus parastigma). Head and thorax bronzy- or violet-black with at most some obscure green reflections. Legs very dark. Very small species, length 1·1-1·5 mm. .... ? *coilus* (Walk.) var.

— Either the antennae are relatively longer, the funicular segments ventrally have two sets of bristles (subbasal and subapical, see fig. 49) of which the subbasal ones reach at most to the apices of the segments, whilst the fourth segment is at least twice as long as broad; or (some *epaphus*) the head and thorax are extensively tinged with bright green 21

21. Species with the following combination of characters: small size (length 1·05-1·7 mm.); head, and thorax dorsally, mainly or entirely brassy- to blue-green; antennae (fig. 49) relatively short, the combined length of the pedicellus and flagellum distinctly less than that of the thorax: first funicular segment clearly less than twice the length of the pedicellus; fourth flagellar segment at least slightly less than twice as long as broad, often closely united with the fifth 22

— Either the head and thorax are mainly or entirely bronze- to violet-black; or the first funicular segment is at least twice the length of the pedicellus; or (*phaola, acamas*) the combined length of the pedicellus and flagellum is equal to or slightly greater than the length of the thorax. The fourth funicular segment(except in some small specimens of certain species) is at least twice as long as broad, and is usually separated from the fifth by a distinct constriction. Length 1·2-2·55 mm. ... 23

22. Antennal flagellum (fig. 49) more thickly hairy. Forewing: marginal vein plus parastigma 8-8·7 times as long as the stigmal vein. Gaster 2·3-2·8 times as long as broad. .... *epaphus* (Walker)

— Antennal flagellum less thickly hairy. Forewing: marginal vein plus parastigma 7-8 times as long as the stigmal vein. Gaster 1·8-2·3 times as long as broad ...... *varipes* (Thomson)

23. Antenna: first funicular segment twice, or rather more than twice, as long as the pedicellus. Gaster not, or hardly, longer than head plus thorax, 1·8-2·3 times as long as broad 24

— Either the first funicular segment is at most 1·7 times the length of the pedicellus or the gaster is relatively longer (2·4-3·2 times as long as broad, at least slightly longer than head plus thorax) 25

24. Face, and frons below the fork, mainly or wholly green to brassy-green; rest of head, and dorsum of thorax, at least slightly greenish-tinged .... *betulicola* sp. n.

— Head bronze- to violet-black with, at most, the clypeus and flecks on the face above it, greenish; dorsum of thorax (excepting the propodeum) bronze- to violet-black, or at most the front of the mesoscutum slightly greenish ...... sp. indet.

25. Pronotum, mesoscutum, and scutellum, with very superficial, hardly engraved sculpture, conspicuously shiny (even the front of the mesoscutum). Forewing: marginal vein plus parastigma 7·5-8·5 times as long as the stigmal vein; postmarginal vein usually longer than (as a rule about 1·5 times as long as) the stigmal. (Head and thorax usually ± green

or brassy. Gaster 2·4-3·1 times as long as broad, distinctly longer than head plus thorax; last tergite about as long as its basal breadth) .... *phaola* (Walker)

— Pronotum, mesoscutum, and scutellum, with distinctly engraved sculpture (especially the front of the mesoscutum), hence relatively duller. Forewing: marginal vein plus parastigma usually 6·3-7 times as long as the stigmal vein, occasionally up to 8 times in *aetius* and *coilus,* in which the head, thorax except the propodeum (and sometimes the front of the mesoscutum) are mainly violet- to bronze-black 26

26. Gaster 1·8-2·1 times as long as broad, not, or hardly, longer than head plus thorax; last tergite usually transverse, rarely as long as its basal breadth. (Head and thorax wholly or mainly violet- to bronze-black; at most the clypeus, flecks on the face above it, and the propodeum, ± green. Forewing hyaline; postmarginal vein about as long as the stigmal vein, or hardly longer) .... sp. indet.

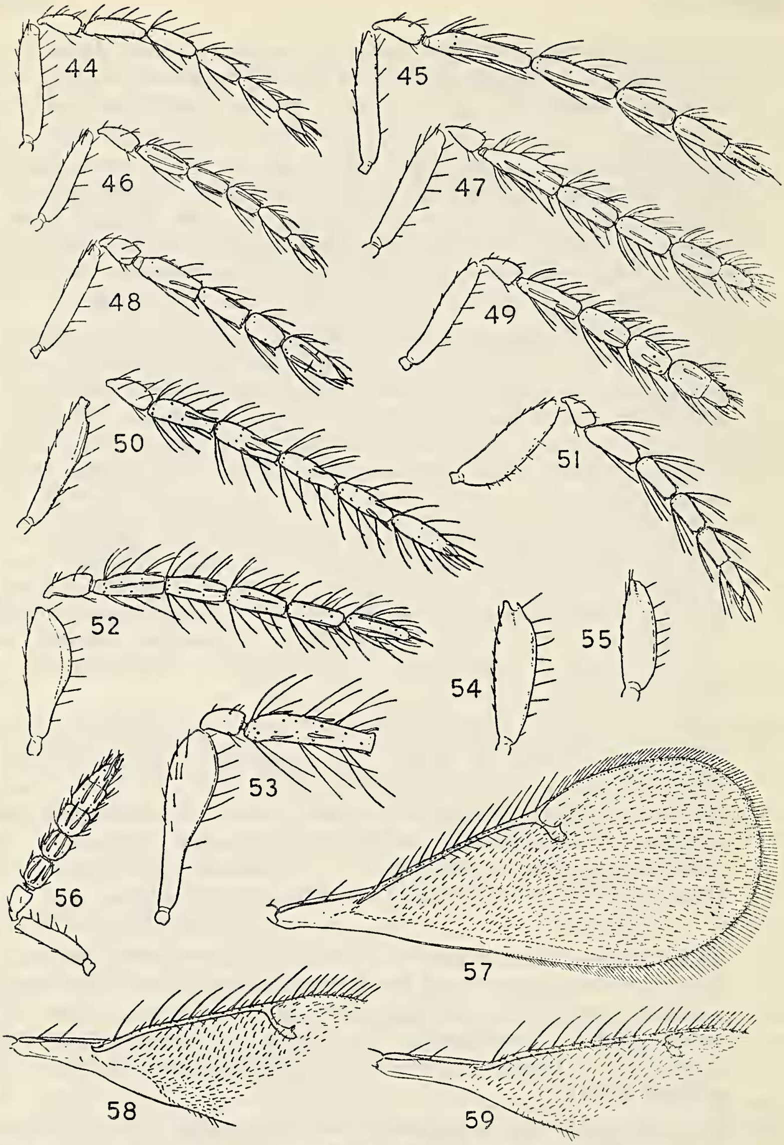
— Gaster 2·4-3·2 times as long as broad, at least slightly (but usually distinctly) longer than head plus thorax; last tergite as long as or somewhat longer than its basal breadth, rarely very slightly transverse. (Face, frons below the fork, mesonotum, and scutellum, sometimes mainly to wholly green. Forewing: postmarginal vein sometimes distinctly longer than the stigmal vein) 27

27. Clypeus, face, and frons below the fork, mainly to entirely green, blue-green, or brassy, the metallic reflections quite strong; sometimes the rest of the frons, and the vertex, have similar though less intense metallic tints. Mesoscutum and scutellum nearly always more or less tinged with green or brassy, sometimes strongly so. (Forewing: postmarginal vein not or hardly longer than the stigmal vein) .... *acamas* (Walker)

— Head violet- to bronze-black with at most some greenish flecks on the clypeus and the face above it (rarely the vertex slightly greenish). Mesoscutum and scutellum violet- to bronze-black, occasionally the front of the mesoscutum greenish. (Postmarginal vein sometimes longer than the stigmal vein) 28

28. Forewing (fig. 36): postmarginal vein usually about 1·5 times as long as (occasionally hardly longer than) the stigmal vein; the wing often ± yellowish-tinged, especially discally. In pale-legged forms the legs, including all the coxae, are bright testaceous; in dark forms some or all of the coxae and femora may be partly to almost entirely fuscous ...... *aetius* (Walker)

— Forewing: postmarginal vein not, or hardly, longer than the stigmal vein; the wing hyaline or slightly tinged with grey. All coxae dark, femora mainly so; tibiae often ± infuscate medially .... *coilus* (Walker)



Figs. 44-59.—44, *Omphale brevis* sp. n., ♀, antenna; 45, *O. connectens* sp. n., ♀, antenna; 46, *O. phruron* (Walk.), ♀, antenna; 47, *O. aethiops* sp. n., ♀, antenna; 48, *O.* ? *coilus* (Walk.), var., ♀ antenna; 49, *O. epaphus* (Walk.), ♀, antenna; 50, *O. erginnus* (Walk.), ♂, antenna; 51, *O. navius* (Walk.), ♀, antenna; 52, *O. telephe* (Walk.), ♂, antenna; 53, *O. versicolor* (Nees) Thoms., ♂, basal part of antenna; 54, *O. salicis* Hal., ♂, antennal scape; 55, *O. phruron* (Walk.), ♂, antennal scape; 56, *Pholema microstoma* gen. et sp. n., ♀, antenna; 57, *Achrysocharis lanassa* (Walk.), ♀, forewing; 58, *Ceranisus menes* (Walk.), ♂, forewing; 59, *C. pacuvius* (Walk.), ♂, forewing.

A key to some males

1. Antennal scape (fig. 50) slender but widening slightly in its upper half, its front (or ventral) edge with a narrow carina above the middle; bristles composing the whorls on the flagellum not longer than the segments themselves. Forewing: the row of underside admarginal hairs all arise from the marginal vein; radial cell hairy, or bare only at its base (in the angle between the postmarginal and stigmal veins). Vertex of head polished and only very weakly sculptured; occipital edge ± sharp behind the ocelli. Anterior margin of metapleuron straight, or even feebly curved backwards ...... *erginnus* (Walker)

— Antennal scape either (figs. 51, 54, 55) relatively broad, fusiform and widest at about the middle; or else (figs. 52, 53,) slender basally and strongly expanded above the middle, always without a ventral carina; bristles composing the whorls on the flagellum often relatively longer. Forewing: the row of underside admarginal hairs frequently irregular with some of the hairs arising from the wing-membrane; radial cell sometimes bare. Vertex usually ± sculptured. Anterior margin of metapleuron usually curved 2

2. Antennal scape (figs. 52, 53) long, normally reaching above the level of the vertex, slender basally but much expanded above the middle. Anterior margin of metapleuron nearly straight 3

— Antennal scape (figs. 51, 54, 55) not longer than an eye and not, or hardly, reaching above the level of the vertex, subfusiform and broadest at about the middle. Anterior margin of metapleuron ± curved forwards 5

3. Prosternum, usually the postspiracular sclerite and the lateral flaps of the pronotum, sometimes also genae and occipital surface of head ±, yellow; legs including all coxae yellow. Forewing: speculum closed, postmarginal vein about twice as long as the stigmal. Antenna similar to that of *versicolor* (fig. 53), the scape reaching well above the vertex; combined length of pedicellus and flagellum about twice the breadth of the head .... *admirabilis* (Westw.)

— Prosternum, postspiracular sclerite, pronotum, and head, metallic; legs sometimes wholly yellow (especially in *versicolor*) but often the coxae are ± infuscate. Forewing: either the speculum is open below, or else the postmarginal vein is not longer than the stigmal and the antennal scape reaches hardly above the level of the vertex 4

4. Forewing: speculum open below: postmarginal vein distinctly longer than the stigmal. Antennal scape (fig. 53) reaching well above the vertex, very slender basally; combined length of pedicellus and flagellum about twice the breadth of the head; flagellar segments relatively longer ... *versicolor* (Nees)

— Forewing: speculum closed below; postmarginal vein not longer (sometimes even a little shorter) than the stigmal vein. Antennal scape (fig. 52) reaching hardly above the level of the vertex, stouter (especially basally); combined length of pedicellus and flagellum at most about 1·6 times the breadth of the head; flagellar segments relatively shorter .... *telephe* (Walker)

5. Forewing: the row of underside admarginal hairs all, or nearly all, arise from the marginal vein; radial cell mainly bare and ± delimited below by a line of hairs proceeding distad from the stigma. Face between lower corners of eyes and sides of clypeus usually with an area of distinct strigose-reticulate sculpture 6

— Forewing: the row of underside admarginal hairs irregular (sometimes partly double), some of the hairs arising from the wing-membrane; radial cell mainly hairy, not delimited below by a line of hairs. Face between lower corners of eyes and sides of clypeus relatively smooth, with at most some weak irregular sculpture 11

6. [Forewing: speculum open below. The unknown male of *clymene* should have this character.]

— Forewing: speculum closed below 7

7. [Frons above the fork, and vertex, smooth and polished; vertex slightly ridged behind the ocelli. The unknown male of *rubigus* should have these characters.]

— Frons above the fork, and vertex, at least partly alutaceous; vertex not margined 8

8. [Face between lower corners of eyes and sides of clypeus relatively smooth. The unknown male of *connectens* sp. n. should have this character.]

— Face with an area of distinct strigose-reticulate sculpture in the above positions 9

9. Combined length of pedicellus and flagellum about equal to length of head plus thorax; each segment of the funicle has two whorls of long bristles (one sub-basal, the other situated near or beyond the middle). Slender species with thorax about 1·8 times as long as broad; legs long and slender; spur of mid tibia hardly half the length of the first tarsal segment, the latter one-third as long as its tibia and much longer than the second tarsal segment .... *salicis* Hal.

— Combined length of pedicellus and flagellum distinctly less than head plus thorax; each segment of the funicle has one (subbasal) whorl of long bristles. More squat species with thorax at most about 1·5 times as long as broad; legs shorter and stouter; spur of mid tibia about three-quarters the length of the first tarsal segment, the latter about one quarter as long as its tibia and hardly longer than the second tarsal segment. 10

10. Forewing (fig. 34): stigma large, oblong or rhomboidal. Body blue- or violet-black, with face, frons, propodeum, and base of gaster ± green or bluish-green. Vertex, mesoscutum, and scutellum relatively dull .... *navius* (Walker)

— Forewing: stigma smaller, differently shaped. Body mainly bronzy-green dorsally, the vertex and scutellum more bronze or purplish, the face and frons green. Vertex, mesoscutum, and scutellum slightly glittering .... *phruron* (Walker)

11. Legs very slender; spur of mid tibia hardly more than half the length of the first tarsal segment .... *aethiops* sp. n.

— Legs less slender; spur of mid tibia rather longer. (Males of species-group of *aetius,* which cannot be distinguished satisfactorily at present).

Notes upon and descriptions of British species

A taxonomic account of the British species is not without its difficulties. A number of the species are distinct and reasonably easy to recognise. The same cannot be said of what may be termed the group of *aetius* (Walker), which contains a number of forms the status of which is rather problematic. These forms are here treated as separate species because the degree and kind of variation shown does not seem consistent with the idea of a single species. Individual specimens are sometimes difficult to place, but this might be expected if we are dealing with a complex of sibling species that are not very clearly differentiated morphologically. We know so little of the biology of this genus, however, that such speculations are premature.

Species sola:

Omphale clypealis (Thomson)

Derostenus (*Secodes*) *clypealis* Thomson, 1878, *Hym. Scand.,* **5**: 270, ♀.

There are 7 female syntypes of *clypealis* in Thomson's collection; one of them has been selected and labelled as lectotype. This species differs considerably from the others so far known in the structure of the clypeus and the female antennae. It may now be added to the British list.

England, Berkshire, Wytham Wood, 29.viii.1962, one female, probably swept from a flower-head of *Angelica sylvestris* L. (Graham).

Sweden, Skåne, Lund, 7 females (coll. Thomson); 2 females, swept 29.vii.1959 from flowers of *Pastinaca sativa* L. growing by a disused railway track near Universitetets Zoologiska Institution (Graham); Yddingen, 29.vii.1959, one female swept amongst alder scrub on the shore of the lake (Graham).

Species-group of *salicis* Haliday:

Omphale salicis Haliday

Omphale salicis Haliday, 1833, *Ent. Mag.,* **1**: 339, ♂, ♀.

Eulophus subulatus Nees, 1834, *Hym. Ichn. affin. Mon.,* **2**: 167, "Mas" [recte ♀].

Haliday gives no type-locality for *salicis* but one may assume that his material was either British or Irish.

A female *Omphale* in the Westwood collection (Oxford), bearing a printed label "Salicis" is certainly a Haliday specimen and may be regarded as a syntype. Five other syntypes (four females, Nos. 1095-1098, and one male, No. 1101) are in Haliday's collection. Only the male is labelled as *salicis,* but the females (which stand next to each other) agree well with the description and must be part of Haliday's original material. A female (No. 1096), bearing a label "612" in Haliday's handwriting, is now designated as lectotype of *salicis.*

The species is probably not infrequent in Britain.

Thomson (1878, *Hym. Scand.*, **5**: 268) placed *subulatus* (Nees) as a synonym of *salicis.* The available evidence indicates that this is correct. Westwood examined the holotype of *subulatus* about 1842. Amongst his manuscripts there is a pencil drawing of it, and another of the antenna on a larger scale; below these he wrote "*Eulophus subulatus* Esenb. 2. 167. from Esenbeck's specimen". These drawings show that it is an *Omphale.* After comparing specimens with the drawings and with Nees' description, I conclude that *subulatus* can hardly have been anything except *salicis.*

Omphale theana (Walker)

Entedon Itheana Walker, 1839, *Mon. Chalciditum,* **1**: 81, ♀.

Entedon Ithonus Walker, 1839, *loc. cit.*: 82, ♀, syn. n.

Entedon theana Walker: four females in the British Museum (Nat. Hist.) are labelled as having originally stood under this name; one of them, bearing a circular label with serial number 38.4.5.216 is selected as lectotype.

Entedon ithonus Walker: two females stand under this name, but only one of them, bearing a circular label with serial number 38.4.5.217, is certainly original material; it is selected as lectotype.

New record:

England, Lincolnshire North, Woodhall Spa, 25.vii.1951, several females (Graham).

Omphale radialis Thomson

Derostenus (*Omphale*) *radialis* Thomson, 1878, *Hym. Scand.* **5**: 269.

Syntypes are mounted on 13 pins in Thomson's collection (Lund). The first in the series is designated as lectotype; it is a female, bearing two labels reading "Bås" [Båstad] and (in Thomson's handwriting) "radialis Ths".

New records:

England, Berkshire, Wytham Wood, 2.viii.1958, two females (Graham).

Omphale chryseis sp. n.

Female.—Face green, frons above the fork coppery-golden; genae, temples, and vertex bronze, occipital surface coppery-bronze. Thorax green with slight golden reflections. Gaster greenish; hind margins of tergites 1-4 tinged with purplish-bronze (which forms rather broad bands on tergites 2-4), the last tergite more or less of this colour on the disc. Scape pale testaceous over its basal half, otherwise blackish like the rest of the antenna. Coxae green, pale at apex, or fore and mid coxae pale testaceous and dark at base only; trochanters testaceous or partially infuscate; femora fuscous to blackish, testaceous at base and apex; tibiae testaceous, the fore and mid pair faintly or distinctly darkened medially; tarsi fuscous, those of mid and hind legs testaceous basally. Wings hyaline, venation fusco-testaceous.

Length 1·8-2·0 mm.

Falls into the species-group of *salicis* Haliday, characterised by having relatively short antennae; forewing with bristles of admarginal row all or nearly all originating from lower edge of marginal vein, radial cell mainly bare and more or less delimited below by a line of hairs extending from stigma; gaster lanceolate, its last tergite much longer than basally broad and more or less ridged longitudinally.

Differs from *salicis* Haliday in having gaster shorter, only 1·5-1·8 times as long as the thorax and about 1·5-1·8 times as long as broad; its last tergite forming less than a quarter of the total length of the gaster and 1·8-2·1 times as long as basally broad; legs shorter and not so slender.

It is even closer to *radialis* (Thomson) from which it differs in the characters given in the key.

Male.—Unknown.

Holotype in the Hope Department, Oxford; paratypes in my own collection.

England: Oxfordshire, Oxford Canal north of Oxford, 17.vii. 1955, two females (one the holotype) (Graham).

Ireland: Co. Clare, Poulsallagh, 9.viii.1955, one female (A. W. Stelfox).

Species-group of *navius* (Walker):

Omphale navius (Walker)

Entedon Navius Walker, 1839, *Mon. Chalciditum,* **1**: 92; Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 201.

Entedon coactus Ratzeburg, 1848, *Ichn. Forstins.,* **2**: 167, ♀; Thomson, 1878, *Hym. Scand.,* **5**: 270.

Secodes coactus (Ratz.), Dziurzynski, 1961, *Acta zool. Cracoviensia,* **6**: 1-60.

Entedon navius Walker: three specimens stand under this name in the British Museum (Nat. Hist.), but the first one is probably not original material. The others are a male and a female. Lectotype: the female, which bears a circular label with serial number 38. 4. 5. 225.

Entedon coactus Ratzeburg: the type of this species is lost. Ratzeburg's description of *coactus* would fit *navius* very well, and the above synonymy is probably correct.

E. navius is apparently common in Britain and may be found upon Birch (*Betula* spp.) and beech (*Fagus sylvatica* L.), especially the former.

The species is an endophagous parasite of *Mikiola fagi* Htg. (Dipt., Cecidomyiidae) (see Thomson, 1878: 270; Dziurzynski, 1961).

Omphale phruron (Walker).

Entedon Phruron Walker, 1839, *Mon. Chalciditum,* **1**: 87, ♂, ♀; Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 202.

Two syntypes from Walker's collection, a female and a male, are in the British Museum (Nat. Hist.). The male is selected as lectotype. The female specimen might be Walker's var. *β*.

When writing my notes on *Omphale* for my previous key (1959) I was unable to associate females with Walker's male type of *phruron*. Since then I have done so and can now give the following new records.

England: Berkshire, Wytham, 1.vi.1951, one female; Oxfordshire, Bald Hill, near Lewknor, 20.viii.1957, one male, one female, 20.vi.1959, one male, one female; Northamptonshire, Yelvertoft, 7.vii.1954, two females (Graham).

Omphale nitens sp. n.

Female.—Head bronze or purplish-bronze, the frons often coppery or purplish, the face and clypeus with conspicuous green or brassy-green reflections. Thorax and gaster bronze, but the mesoscutum, scutellum, and propodeum are bright green or blue-green. Antennae blackish, the scape either with its basal half testaceous, or wholly testaceous except for a dorsal stripe. Legs testaceous with the following parts ± infuscate: bases of fore coxae sometimes, bases of mid coxae, bases or basal half of hind coxae, all the femora more or less, and all tarsi. The tibiae in one specimen are faintly darkened medially. Tegulae mainly to wholly testaceous. Wings subhyaline or somewhat infumate; venation testaceous or fusco-testaceous. Length 1·6-1·7 mm.

Face between lower corners of eyes and lateral margins of clypeus with fairly distinct strigose-reticulate sculpture. Frons above the fork, and vertex delicately alutaceous; vertex not margined. Antennae: combined length of pedicellus and flagellum about 1·3 times the breadth of the head; pedicellus barely twice as long as broad; flagellum slightly longer and more slender than that of *phruron* Walker [fig. 46] and with its segments relatively longer; first segment 1·25-1·4 times as long as the pedicellus and 2·6-3·5 times as long as broad, fourth 2·1-2·5 times as long as broad.

Thorax about 1·6 times as long as broad. Prothorax, mesoscutum, and scutellum with delicate engraved (alutaceous) sculpture, shiny. Scutellum slightly longer than broad. Forewing nearly 2·5 times as long as broad; speculum closed below; radial cell bare; marginal vein plus parastigma 5·8-7·2 times the length of the stigmal vein (therefore relatively slightly longer than in *phruron;* postmarginal vein varying from hardly longer than, to about 1·5 times as long as, the stigmal; stigma rather smaller than that of *phruron*, more attenuate proximally and so distinctly petiolate (much like that of *brevis,* fig. 33); admarginal hairs few, all or nearly all arising from the marginal vein; longest fringe of wing about equal in length to the stigmal vein. Hindwing slightly pointed at apex; postmarginal space very slightly longer than the marginal vein. Legs moderately short. Mid legs: first tarsal segment about one quarter the length of its tibia; tibial spur about two-thirds as long as the first tarsal segment.

Gaster ovate, 1·9-2·25 times as long as broad, acute at apex; last tergite slightly shorter than its basal breadth; ovipositor sheaths very slightly exserted.

Male.—Unknown.

This species resembles *phruron* (Walker) which differs in having at most slight greenish reflections on the face and clypeus, the thorax bronze with greenish or coppery tinge on the mesocutum and propodeum only, the scape at most pale basally, the legs, tegulae and wing-venation darker. *O. phruron* differs in the structural characters already mentioned, also in having a rather longer gaster (2-2·6 times as long as broad, slightly to distinctly longer than head plus thorax; last tergite about as long as its basal breadth). *O. nitens* differs from *O. brevis* sp. n. in its longer gaster, longer marginal vein, more brightly metallic head and thorax, and darker legs.

Holotype in the Hope Department, Oxford; paratypes in my own collection.

England: Berkshire, Wytham, 1.vii.1951, one female; 4.vi.1952, one female; 12.vi.1952, one female (the holotype). These specimens were taken by sweeping marshy ground between Wytham Wood and the river Thames.

Omphale brevis sp. n.

Female.—Body bronze; the face partly, the side lobes of the mesoscutum (outside the notaulices), the propodeum, and the basal tergite of the gaster, greenish. Antennae fuscous with proximal half of scape testaceous. Legs testaceous with fore coxae fuscous proximally, the fore tarsi brownish, all pulvilli and claws fuscous, hind femur slightly darkened above. Tegulae piceous; wings subhyaline (the forewing faintly yellowish), venation testaceous. Length about 1·3 mm.

Head: face between clypeus and lower corner of eye delicately strigose-reticulate; vertex, and frons between the fork and the median ocellus, mainly alutaceous (the frons weakly so); occiput not margined. Antennae (fig. 44): combined length of pedicellus and flagellum about 1·3 times the breadth of the head; pedicellus about 2·5 times as long as broad in profile; flagellum rather slender, its first segment nearly 2·5 times as long as broad but hardly longer than the pedicellus, segments 2-4 hardly shorter (but more slender) than the first; fifth segment shorter.

Thorax 1·5 times as long as broad. Mesoscutum and scutellum finely and not strongly sculptured, but not very shiny; notaulices shallow. Scutellum about 1·25 times as long as broad. Propodeum relatively long for the genus (medially nearly twice as long as the dorsellum); petiolar foramen narrower than in the other species of the genus, its breadth slightly more than one quarter that of the propodeum. Forewing (fig. 33) nearly 2·5 times as long as broad; speculum closed below; marginal vein plus parastigma 5-6 times the length of the stigmal vein; there is a row of about ten relatively long admarginal hairs whose bases are extremely close to, but not actually upon, the marginal vein; postmarginal vein 1·5-2 times as long as the stigmal vein; stigma petiolate, subrhomboid, smaller than in *navius*; radial cell ± bare; longest fringe of wing about as long as the stigmal vein. Hindwing pointed at apex; postmarginal space slightly longer than the marginal vein. Legs relatively short and tarsal segments also rather short (but slightly longer than in *navius*); spur of mid tibia hardly half the length of the first tarsal segment, the latter as long as the second and third together.

Gaster not or hardly longer, but slightly broader, than the thorax, 1·2-1·6 times as long as broad, hardly keeled ventrally; last tergite transverse.

Resembles *navius* (Walker) in its squat build, short legs, and short gaster; but differs in having a longer and more slender antennal flagellum, more elongate forewing with different venation and a greater number of admarginal hairs, and paler legs. From the other species of the genus it differs in its very short gaster.

Male.—Unknown.

Holotype and paratype in my own collection.

England: Berkshire, Wytham Wood, 4.vi.1952, one female (the holotype); Lincolnshire North, Salmonby, 28.vii.1951, one female (Graham).

Omphale rubigus (Walker)

Entedon Rubigus Walker, 1839, *Mon. Chalciditum,* **1**: 91, ♀.

Omphale rubigus (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 201.

?*Entedon Rhesus* Walker, 1839, *Mon. Chalciditum,* **1**: 88, ♀.

Of the three females which stand under the name *rubigus* in the British Museum (Nat. Hist.), two are syntypes. One of these, bearing a circular label with the serial number 38.4.5.224 is chosen as lectotype.

An uncommon species.

England: Berkshire, Wytham, 7.vii.1951, one female; 14.vi.1952, two females (Graham). These were taken in marshy spots, near Wytham Wood.

Entedon rhesus Walker: one female, labelled "Rhesus" in Walker's handwriting, stands under this name in the British Museum (Nat. Hist.); it does not agree well with the description. Haliday's collection contains a Walker female (No. 1076) labelled "rhesus" and this could be Walker's var. β. Both these specimens have the thorax coppery, whereas the description of *rhesus* states "Laete viridis cupreo-varius . . . " They are conspecific and identical with *rubigus;* this can hardly be due to coincidence and it seems likely that Walker made a mistake in his description.

Omphale clymene (Walker)

Entedon Clymene Walker, 1839, *Mon. Chalciditum,* **1**: 91.

Omphale clymene (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 201.

One female, bearing a label "Clymene" in Walker's handwriting, stands under this name in the British Museum (Nat. Hist.); it is designated as lectotype.

Also uncommon; so far I have seen no males.

England: Berkshire, Bagley Wood, 4.viii.1954, three females; Buckinghamshire, Hell Coppice, near Oakley, 1.viii.1954, two females (Graham).

Omphale erginnus (Walker)

Entedon Erginnus Walker, 1839, *Mon. Chalciditum,* **1**: 124, ♂.

Omphale erginnus (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 202.

I could not include *erginnus* in my previous key to British *Omphale* (1959) because the female was unknown. Since then Dr. Erdös has taken in Hungary a female which is clearly that of *erginnus*; he has kindly allowed me to include its diagnostic characters in the key presented in this paper. The male is very distinct from those of other British *Omphale* in the characters mentioned in my key to males.

One male stands under this name in the British Museum (Nat. Hist.) and is now designated as lectotype; it bears a label "Erginnus" in Walker's handwriting.

New records:

England: Buckinghamshire, Hell Coppice, near Oakley, 31.vii.1954, one male, 13.ix.1958, one male; Lancashire South, Freshfield, 4.ix.1960, one male on *Betula* sp. (Graham). The other specimens were probably also swept from *Betula*.

Species-group of *admirabilis* (Westwood):
Omphale admirabilis (Westwood)

Smaragdites admirabilis Westwood, 1833, *Mag. nat. Hist.*, **6**: 419.

Omphale admirabilis (Westwood), Graham, 1959, *Trans. Soc. Brit. Ent.*, **13** (10): 201.

Type in Westwood's collection (Oxford): a male mounted on a card, bearing two labels in Westwood's handwriting "Cb. [Coombe] May 1831" and "SMARAGDITES admirabilis Westw. Mag. N[at.] H.[ist.]". The antennae are missing but otherwise the specimen is in good condition.

This beautiful species appears to be rather rare. I have only the following additional records:

England: Berkshire, Bagley Wood, 14.vi.1954, three females; 10.vi.1955, one male, one female.

Walker (1839, *Mon. Chalciditum*, **1**: 75) queried the identity of this species with his *Entedon telephe*. There is in fact a female of *admirabilis* standing with his series of *telephe*, but it was not registered as such and disagrees with the description.

Omphale versicolor (Nees) *sensu* Thomson

Eulophus versicolor Nees, 1834, *Hym. Ichn. affin. Mon.*, **2**: 169, ♂ [recte ♀].

Derostenus (*Omphale*) *versicolor* (Nees), Thomson, 1878, *Hym. Scand.*, **5**: 269.

Entedon Anthylla Walker, 1839, *Mon. Chalciditum*, **1**: 85, ♀ [nec ♂], syn. n.

Nees' type of *versicolor* is presumably destroyed; it does not exist among the remnants of his collection in Oxford. Thomson's interpretation accords well enough with the original description; I select a female in his collection labelled "Röst" [Rostånga] as neotype.

Entedon anthylla Walker: four specimens stand under this name in the British Museum (Nat. Hist.), but one is not a syntype. Lectotype: a female bearing a circular label with serial number 38.4.5.221. The other syntypes (males) belong to different species.

New records:

England: Berkshire, Wytham Wood, 17.v.1951, one male; 14.iv.1957, several males and females; 4.v.1958, several males and females; 29.iv.1959, males and females (Graham). All these were swept from Dog's Mercury (*Mercurialis perennis* L.) and most of them were taken in quite a small area near a holly tree.

Omphale telephe (Walker)

Entedon Telephe Walker, 1839, *Mon. Chalciditum,* **1**: 75, ♂ [?nec ♀].

Three specimens stand under this name in the British Museum (Nat. Hist.). The first does not agree with the description and belongs to *admirabilis.* The second, a female, agrees well if one assumes that the colour characters given for the male in Walker's description apply also to the female (but for the latter he mentions only the colour of the antennae). The third specimen, a male, agrees well with Walker's description of that sex and is selected as lectotype.

Haliday's collection contains a female of this species, labelled as "phruron" (of which it may well be a syntype).

Walker's original record of *telephe* was "August: in woods, near London" (1839, *loc. cit.*: 76). I have invariably found the species in spring, especially on flowers of blackthorn (*Prunus spinosa* L.); but if a later brood sometimes occurs, this would account for Walker's record.

I have the following new records:

England: Berkshire, Wytham Wood, 30.iv.1955, several females; 14.iv.1957, two males and several females (all the foregoing on *Prunus spinosa* L.); 21.iv.1959, one female, on *Mercurialis perennis* L.; 30.iv.1960, males and females (on *Mercurialis*); 31.iii.1961, females (on *Prunus spinosa*).

Species sola:

Omphale connectens sp. n.

Female.—Body black with slight violet and bronze reflections which tend to be strongest on the face and frons; propodeum often more or less greenish; base of gaster green. Antennal scape testaceous, sometimes infuscate dorsally; pedicellus brown, or more or less testaceous beneath and apically; flagellum fuscous. Legs testaceous; fore coxa black; as a rule some or all of the femora are more or less infuscate except at the base and apex; tibiae sometimes slightly darker medially (especially in the Irish specimens); claws and pulvilli fuscous. Tegulae piceous; forewing subhyaline or yellowish-tinged; venation testaceous or brown. Length 1·5-1·6 mm.

Head: space between clypeus and lower corner of eye relatively smooth, with traces of weak strigose-reticulate sculpture near the clypeus; frons above the fork shiny, very weakly alutaceous; vertex also shiny and nearly smooth, excepting the ocellar triangle, which is alutaceous; occiput not margined. Antennae (fig. 45): combined length of pedicellus and flagellum somewhat greater than the length of thorax and fully equal to the length of marginal vein plus parastigma; first flagellar segment 3·4-4·5 times as long as broad, 1·6 times to nearly twice as long as the pedicellus, the following segments progressively slightly shorter, the fourth 2-2·5 times as long as broad.

Thorax about 1·6 times as long as broad. Mesoscutum and scutellum relatively shiny, with delicate, hardly engraved sculpture; notaulices broad and shallow posteriorly; side lobe of mesoscutum with 2 bristles. Scutellum slightly longer than broad. Mesepimeron weakly alutaceous, shiny, oval and only slightly longer than broad, the groove which separates it from the mesopleuron curved forward. Legs neither very long nor unusually slender; all the tarsi distinctly shorter than their tibiae; mid tarsus with its first segment slightly more than one-quarter the length of its tibia and almost equal in length to segments 2 plus 3, the spur of the mid tibia about half as long as the first tarsal segment; hind tarsus with its first segment distinctly shorter than segments 2 plus 3. Forewing: speculum closed below; the row of admarginal hairs regular, all or nearly all the hairs arising from the lower edge of the marginal vein; radial cell wholly or mainly bare (to beyond the tip of the postmarginal vein); marginal vein plus parastigma 7-8·5 times as long as the stigmal vein; postmarginal vein 1·5-2 times as long as the stigmal vein; the latter is very thin proximally, while it expands to form a small stigma (much as in *brevis,* fig. 33). Hindwing bluntly pointed or obtuse at apex; the longest fringe about one-third the breadth of the wing at the level of the hamuli.

Gaster long-ovate or sublanceolate, about as long as or slightly longer than head plus thorax, not or hardly narrower than the latter, 2-2·4 times as long as broad; last tergite about as long as, or rather shorter than, its basal breadth, its posterior half hairy (but not very thickly so); ovipositor sheaths slightly exserted; ventrally the base of the gaster projects between, but not in front of, the mid coxae.

Male.—Unknown.

Holotype in the Hope Department, Oxford; paratypes in my own collection.

England: Berkshire, Bagley Wood, 11.vii.1956, one female. Scotland: Mid Perth, Lawers, 13.vii.1953, two females (one the holotype) (Graham). Ireland: Co. Dublin, Ireland's Eye, 30.vii.1941, one female (A. W. Stelfox); Co. Down, Newcastle, 29.vi.1957, 3.vii. 1957, two females, swept from sand-dune vegetation (Graham).

Most of the characters of this species accord with those of the group of *aetius* Walker, but it differs from all the other species of this group in the regular row of admarginal hairs of the forewing and the bare radial cell; otherwise in structure it much resembles *phaola* (Walker). From the other species which have a regular row of admarginal hairs and a bare radial cell it differs in having the face between the clypeus and lower corner of the eye very weakly sculptured (without distinct strigose-reticulate sculpture).

Species-group of *aetius* (Walker):

Omphale aethiops, sp. n.

Female.—Bronzy-black; face, frons below the fork, and propodeum, sometimes slightly tinged with greenish, occasionally the front of the mesoscutum is very slightly greenish. Antennae blackish, the scape and pedicellus tending towards fuscous, or partly brown. Coxae blackish; rest of legs dull testaceous with the trochanterelli more or less infuscate, all the femora and tibiae fuscous except their bases and apices, and the tarsal claws and pulvilli fuscous. Wings faintly uniformly infumate, venation fusco-testaceous. Length 1·9-2·8 mm.

Body elongate and slender (much as in *salicis* Hal.). Head, including the frons and vertex, weakly alutaceous (the occipital surface more strongly so); vertex not margined. Antennae (fig. 47): combined length of pedicellus and flagellum about 1·7 times the breadth of the mesoscutum though distinctly less than the length of the marginal vein plus parastigma; pedicellus in profile about twice as long as broad; first flagellar segment 3-4 times as long as broad and 1·0-1·8 times as long as the pedicellus, following segments progressively shorter, fourth about twice as long as broad. Flagellum rather thickly hairy.

Thorax about 1·7 times as long as broad. Pronotum, mesoscutum, axillae and scutellum alutaceous, moderately shiny, the sculpture very lightly engraved. Side lobe of mesoscutum with 3 bristles, one of them near the front. Scutellum about 1·3 times as long as broad. Mesepimeron weakly alutaceous, shiny, only slightly longer than broad, oval-subrectangular, the groove which separates it from the mesopleuron strongly curved (or even slightly angulate in the middle). Legs long and very slender; all the tarsi nearly as long as their tibiae; mid tarsus with its first segment slightly more than one-quarter the length of its tibia and almost equal in length to the second plus third segments, the spur of the mid tibia half as long as the first tarsal segment; hind tarsus with its first segment distinctly shorter than segments 2 plus 3. Forewing long, narrow; speculum closed below; the row of admarginal hairs on the underside of the wing irregular, most of the hairs arising from the wing membrane; radial cell hairy (except sometimes at its base) and not delimited below by a line of hairs; marginal vein plus parastigma 6·5-7·5 times as long as the stigmal vein; postmarginal vein slightly longer than the stigmal. Hindwing obtuse at its apex; the longest fringe about one-third the breadth of the wing at the level of the hamuli.

Gaster lanceolate, acuminate, about twice or slightly more than twice as long as the thorax, about four times as long as broad; last tergite 1·5-2 times as long as its basal breadth, with its posterior two-thirds thickly hairy and rather dull (the elongated tubercules from which the hairs arise being close together, thus giving this area a roughened, in some lights an almost longitudinally wrinkled, appearance); hinder part of the preceding tergite also conspicuously hairy; ovipositor sheaths slightly exserted; ventrally the base of the gaster projects distinctly in front of the mid coxae, whilst the hinder half of the gaster is conspicuously hairy.

Male.—Unknown.

Holotype in the Hope Dept., Oxford; paratypes in my collection. England: Berkshire, Bagley Wood, 11.vii.1956, two females (one the holotype) (Graham); Dorsetshire, Yellowham Wood, 27.v.1950, one female (A. W. Stelfox); Lancashire South, Freshfield, 31.v.1959, one female (W. D. Hincks), two females (Graham), all swept from vegetation in a patch of Alder carr; unlocalised, but probably British, one Walker female in the old Hope Westwood collection at Oxford. I have seen another female which was taken by Mr. H. W. Daltry in Bagley Wood, Berkshire, on 5.vii.1956. *O. aethiops* belongs to the group of *aetius* (Walker), but differs from the other species of the group in its very elongate gaster and very slender legs with relatively long tarsi (see key to females).

Omphale epaphus (Walker)

Entedon Epaphus (Walker), 1839, *Mon. Chalciditum,* **1**: 89.

Omphale epaphus (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 202.

Original record: "Ireland, Mr. Haliday" (Walker, *loc cit.*).

I could not find any material labelled as *epaphus* in Haliday's collection. In the British Museum (Nat. Hist.), however, the single specimen (a female) standing under this name is certainly a Haliday specimen, and is now designated as lectotype.

New records:

England: Berkshire, Bagley Wood, 11.vii.1956, one female (Graham). Scotland: Mid Perth, Lawers, 8.vii.1951, one female (A. W. Stelfox). Ireland: Co. Down, Newcastle, 16.vii.1957, one female taken in the garden at 21 Tullybrannigan Road (Stelfox).

Omphale varipes (Thomson)

Derostenus (*Omphale*) *varipes* Thomson, 1878, *Hym. Scand.,* **5**: 269, ♀.

There are 20 syntypes in Thomson's series of *varipes,* which is a very mixed one. I choose as lectotype the ninth specimen in the series, a female having the body green; it bears a label "Rsio" [Ringjön].

This species is extremely close to *epaphus* (Walker) and appears to differ from it only in the characters mentioned in the key. These characters are relative and *varipes* might prove eventually to be only a form of *epaphus.*

Male.—Unknown.

England: Oxfordshire, Otmoor, 25.viii.1956, several females; 29.viii.1956, four females; 17.viii.1957, six females (Graham). All these specimens were swept from flowerheads of *Angelica sylvestris* L.

Omphale betulicola sp. n.

Female.—Resembles the female of *varipes* (Thomson) except as follows: size rather greater (length 1·6-1·9 mm.).

Legs on the average paler, the tibiae usually testaceous (though sometimes partly or mainly brownish); in one specimen the femora are also testaceous.

Antennae slightly longer; combined length of pedicellus and flagellum 1·3-1·4 times the breadth of the head (and 1·6-1·7 times the breadth of the mesoscutum), and not or hardly less than the marginal vein plus parastigma; first flagellar segment longer, 2-2·3 times the length of the pedicellus, and 3·3-4 times as long as broad; fourth segment twice as long as broad. The mesoscutum has very delicate, hardly engraved, alutaceous sculpture and is very shiny (even in front) like the scutellum.

Forewing: marginal vein plus parastigma 6·3-7 times the length of the stigmal vein.

Male.—Although some males believed to be conspecific with the females here described, have been taken, no attempt to describe them in detail is made at present. They resemble the females except in antennae and gaster. Unfortunately no reliable structural characters have been found to separate them from the males of some allied species.

Type in the Hope Department, Oxford; paratypes in the British Museum (Nat. Hist.), and in my own collection.

England: Buckinghamshire, Hell Coppice, near Oakley, 1.viii.1954, one female; 21.vii.1955, two females (one the holotype). Scotland: Mid Perth, Lawers, 21.vii.1954, one female; Inverness-shire, Isle of Rhum, Kinloch, 29.viii.1961, one female. Ireland: Co. Wicklow, Athdown, 13.viii.1954, three females (also one male).

All the above specimens were captured by the author, and were swept from foliage of *Betula* spp. (either *verrucosa* Ehrh. or *pubescens* Ehrh.).

Omphale phaola (Walker), comb. n.

Entedon Phaola Walker, 1839, *Mon. Chalciditum,* **1**: 89.

Original record: "Found near Belfast, Ireland, by Mr. Haliday" (Walker, *loc. cit.*).

Syntypes in the Haliday collection (Dublin) and in that of Walker (British Museum (Nat. Hist.)).

Haliday's collection contains a row of five females (Nos. 1090-1094) which I regard as syntypes of *phaola* (two are so labelled); all are conspecific. I choose one of these (No. 1091), labelled "*phaola*" in Haliday's handwriting, as lectotype.

Walker's collection contains one syntype, a female labelled "Phaola" in his handwriting; it is evidently a Haliday specimen. It does not fit the description quite so well as the lectotype (with which it is conspecific).

New Record:

England: Oxfordshire, Otmoor, 23.vii.1956, five females, beaten from foliage of *Salix fragilis* L. (Graham).

Omphale acamas (Walker)

Entedon Acamas Walker, 1839, *Mon. Chalciditum,* **1**:

Entedon Laelius Walker, 1839, *loc. cit.*: 86, syn. n.

Omphale Acamas (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 202.

Entedon acamas: four specimens in the British Museum (Nat. Hist.) are certainly syntypes. None agrees perfectly with the description but I consider a female having a circular label with serial number 38.4.5.218 as the best lectotype.

Entedon laelius: three female syntypes, one of which has been labelled as lectotype.

New records: I have taken females as follows:

England: Berkshire, Wytham, 1.ix.1951, 26.v.1955; 30.x.1954 on ivy (*Hedera helix* L.), 25.x.1955 (also on ivy).

Omphale aetius (Walker)

Entedon Aetius Walker, 1839, *Mon. Chalciditum,* **1**: 78.

Entedon Metius Walker, 1839, *loc. cit.*: 90, syn. n.

Omphale aetius (Walker), Graham, 1959, *Trans. Soc. Brit. Ent.,* **13** (10): 202.

Entedon aetius: Syntypes in Walker's and Haliday's collections.

Walker coll.: of the specimens standing as *aetius,* six are undoubted syntypes. A female, bearing a circular label with serial number 38.4.5.211 agrees best and is selected as lectotype.

A female (No. 1086) in the Haliday collection and labelled "aetius" by him is clearly a syntype; No. 1087, another female, is probably also a syntype. Both are conspecific with the lectotype.

Entedon metius: one female, labelled "Metius" in Walker's handwriting, stands under this name, and is designated as lectotype.

In my earlier key to *Omphale* (1959: 202) I applied the name *metius* to a species having a relatively shorter gaster than that of *aetius.* The gaster of the type female of *metius* is distorted and I had not assessed its proportions correctly. However, the species referred to as "metius" in couplet 23 (24) of the above key may be a good (though undescribed) species.

O. aetius seems to be a common species. I have females from the following localities:

England: Berkshire, Bagley Wood, 11.vii.1956, 30.v.1957, 4.x.1957, Wytham, 1.ix.1951, 14.vi.1952, 30.vi.1956, 19.ix.1959 (many on a patch of nettles). Lincolnshire North, Salmonby, 18.vii.1951. Ireland: Co. Down, Tollymore Park, 24.vi.1957 (also some males, taken at the same time which are probably conspecific).

Omphale coilus (Walker)

Entedon Coilus Walker, 1839, *Mon. Chalciditum,* **1**: 79.

Entedon Lyaeus Walker, 1839, *loc. cit.*: 84.

Omphale montana Erdös, 1951, *Acta biol. Acad. Sci. hung.,* **2** (1-3): 207, syn. n.

Entedon coilus: four syntypes in the British Museum (Nat. Hist.); one of these, a female bearing a circular label with serial number 38.4.5.213 is selected as lectotype. One of the original records given by Walker (1839: 80) is "Ireland, Mr. Haliday", but I can find no specimen in Haliday's collection.

Entedon lyaeus: three syntypes in Walker's collection, two males and one female. Lectotype: the female specimen.

Omphale montana Erdös: Dr. Erdös himself queried (*in litt.*) whether *montana* might not be the same as *coilus*. He later sent me a syntype of montana (Köszeg mountains, 25.v.1944), which allowed me to confirm his conclusions.

O. coilus is not uncommon in Britain.

Omphale marica (Walker), comb. n.

Entedon Marica Walker, 1839, *Mon. Chalciditum,* **1**: 88, ♀.

There is only one female in Walker's collection, labelled "Marica" in his handwriting; it is designated as lectotype.

The status of *marica* is at present uncertain. The type is very like the female of *aetius* but has the postmarginal vein not longer than the stigmal, whilst the sculpture of the mesoscutum is rather weak. It is also very like the female of *phaola* but has the stigmal vein rather too long, whilst the head and thorax are mainly coppery-bronze. If it is not an aberrant example of *aetius* or *phaola,* then it must be a good species.

Pholema gen. n.

(Anagram of *Omphale;* gender, feminine)

Differs from *Omphale* Haliday in the following combination of characters.

Clypeus small, its anterior margin truncate. Malar space very long, almost half the length of an eye. Oral fossa (peristomium of Thomson) small, its breadth only about 1·5 times the malar space. Notaulices of mesoscutum very shallow and indistinct. Female: antennae with 2 funicular segments (which are hardly longer than broad) and a 3-segmented clava; hypopygium extending to near the apex of the gaster, so that in ventral view only the tips of the ovipositor sheaths are visible. (Male unknown).

Type-species: *Pholema microstoma* sp. n.

The single included species would be a discordant element if placed in *Omphale* and would make it more difficult to define that genus satisfactorily. In *Omphale* the clypeus is relatively large and (except in *clypealis* Thomson) has its anterior margin curved; the malar space is at most about one-third the length of an eye; the oral fossa is larger, its breadth at least three times the malar space; the notaulices, though usually shallow, are always distinct.

In female *Omphale* the hypopygium reaches at most about half way along the gaster, so that a considerable portion of the ovipositor sheaths is visible in ventral view. In most female *Omphale* there are 3 funicular segments and a 2-segmented clava, or else the flagellum has all five of its segments separated by peduncles; in *clypealis* Thomson there are only 2 funicular segments and a 3-segmented clava, but in that species the funicular segments are at least 1·5 times as long as broad.

Pholema microstoma sp. n.

Female.—Body and coxae black with faint bronze reflexions. Mandibles mainly pale. Antennae and legs fuscous; trochanters partly, knees, apices of mid and hind tibiae, and mid and hind tarsi except their fourth segment, pale testaceous. Tegulae fuscous. Wings slightly greyish; venation brownish. Length 0·85-0·95 mm.

Head distinctly broader than the thorax, moderately shiny, with fine alutaceous sculpture; clypeus small (its breadth only about one-third that of the oral fossa or mouth-opening), virtually smooth, its front edge finely margined; eyes very sparsely haired; vertex not ridged at its junction with the occiput; POL very slightly greater than OOL (accurate measurement not possible owing to a slight shrinkage of the head). Antennae (fig. 56): combined length of pedicellus and flagellum about equal to the breadth of the head; pedicellus about 1·5 times as long as broad, a little longer than the first funicular segment; anellus or anelli discoid (it is not certain whether there are two, or only one); funicle slightly stouter than the pedicellus, with two segments which are hardly longer than broad; clava 3-segmented, hardly broader than the funicle, including its terminal spine almost as long as pedicellus plus funicle, its segments not longer than broad. Sensilla of flagellum not numerous, slender; flagellum with relatively short bristles.

Thorax in dorsal view about 1·5 times as long as broad, slightly depressed so as to be a little broader than high. Mesoscutum about 1·6 times as broad as long, moderately convex, with two pairs of bristles on the disc (an anterior and a posterior pair), and two on each of the side-lobes; notauli very shallow, though traceable in some lights to the hind margin of the sclerite. Scutellum slightly longer than broad, as long as the mesocutum, moderately convex. Pronotum, mesoscutum, axillae, and scutellum moderately shiny, with moderately fine, delicate alutaceous sculpture (the latter is not engraved, although it is hardly raised above the general surface). Dorsellum finely reticulate, somewhat dull. Propodeum medially slightly more than one third the length of the scutellum, moderately shiny, finely alutaceous; callus with 2 bristles. Postspiracular sclerite (prepectus) with coarse, though only slightly raised, reticulation, shiny. Mesopleuron and mesosternum moderately shiny, finely and delicately alutaceous; mesepimeron nearly smooth, its anterior margin almost straight. Forewing about 2·3 times as long as broad; costal cell narrow; marginal vein plus parastigma 6·3-6·5 times as long as the stigmal vein; admarginal bristles rather short, all arising close to the marginal vein although the row which they form is slightly irregular; speculum closed below; disc of wing rather sparsely haired; longest fringe about as long as the stigmal vein. Hindwing acute at apex; postmarginal space nearly 1·5 times the length of the marginal vein; longest fringe about half the breadth of the wing.

Legs neither unusually long, nor slender; spur of mid tibia nearly two-thirds the length of the first tarsal segment, the latter nearly one-quarter the length of its tibia, and about as long as the second tarsal segment.

Petiole smooth, conical, about as long as broad, its hind edge semicircularly emarginate. Gaster ovate-elliptic, practically as long as, but narrower than, the thorax, 1·7-1·9 times as long as broad, its sides converging rather abruptly in the distal portion so as to meet at a right or very slightly acute angle; last tergite transverse; tips of ovipositor sheaths just visible in dorsal view.

Male.—Unknown.

Type in the Hope Department, Oxford; paratype in my own collection.

England: Oxfordshire, Bald Hill, near Lewknor, 18.vii.1957, two females (holotype and paratype) swept on chalk downland (Graham).

? *Chrysocharidea* sp.

Omphale sp., Delucchi, 1958, *Entomophaga,* **3** (3): 260, fig. 17g.

Delucchi (*ibid.*) recorded this species from the Continent of Europe on the basis of males reared as parasites of *Lithocolletis messaniella* Zell. on *Quercus* sp. He remarked that although the species was considered by Dr. Ferrière to be probably new, description was being deferred until females were obtained.

In some respects this beautiful little species resembles *Omphale* and *Metasecodes,* but the wings are quite different from the form seen in either of those genera. It might belong to *Chrysocharidea* Erdös (1956, *Acta agronom. Acad. Sci. hung.,* **6** (3-4): 389) though it cannot be the same as the type-species of that genus (*Ch. fimbriata* Erdös, 1956, ibid.: 389, ♀).

It may now be recorded from Britain. Although I have prepared a summary of its characters, like Delucchi I think it inappropriate to describe from the male only.

England: Buckinghamshire, Hell Coppice, near Oakley, 30.viii.1958, one male, taken when sweeping deciduous trees (including *Quercus robur* L.) (Graham).

Ceranisus Walker

The following key refers mainly to British species. I have also included an apparently undescribed species from Central Europe because it has been confused with *pacuvius* (Walker) and I think it advisable to point out the differences.

1 (2) Female only.—Frons and vertex not very shiny, with distinct reticulation which is slightly raised above the general surface; mesoscutum, scutellum, dorsellum, and propodeum with delicate alutaceous sculpture. (Head and dorsum of thorax mainly dark green; gaster dark; legs mainly so. Antenna with funicular segments subquadrate. Forewing similar to that of *pacuvius* (fig. 59)) .... *lepidotus* sp. n.

2 (1) Males and females.—Frons and vertex very shiny, with weak engraved (alutaceous) sculpture, often partly smooth; mesoscutum with very delicate engraved sculpture; scutellum, dorsellum, and propodeum virtually smooth. At most the mesoscutum distinctly greenish; rest of thorax bronze- or violet-black (or the scutellum purplish). Gaster and legs sometimes extensively yellowish.

3 (4) Forewing (fig. 59): postmarginal vein as long as or longer than the stigmal vein; cubital vein (indicated by a line of hairs) not or hardly sinuate upwards. Mesoscutum tending to be greenish, the scutellum purplish.
Male: antennal scape greatly swollen, only about twice as long as broad.
Female: first funicular segment slightly elongate, the second subquadrate; scape about four times as long as broad.
Gaster wholly dark; coxae dark; femora mainly infuscate, tibiae usually ± so .... *pacuvius* (Walker)

4 (3) Forewing (fig. 58): postmarginal vein distinctly shorter than the stigmal vein; cubital vein strongly sinuate upwards, with a bare space below it. Mesoscutum bronze, bluish-black, or violet-black; scutellum black or violet-black.
Male antennal scape not so strongly swollen, about 3·5 times as long as broad.

5 (6) [Coxae dark; femora ± infuscate, tibiae ± so; gaster dark, or at most slightly brownish basally; antennal scape pale, or slightly infuscate distally; pedicellus and flagellum brownish.

Female: antennal scape somewhat expanded,, hardly four times as long as broad; funicular segments relatively long (about 1·7 times as long as broad). Central Europe .... sp. indet.]

6 (5) Coxae yellow, or at most the fore and hind ones dark over their basal half; femora yellow, or at most the hind ones ± infuscate; tibiae yellow; gaster yellow to brownish-yellow, the tergites sometimes with narrow transverse fuscous bands; antennae yellow with the pedicellus ± infuscate, occasionally the clava is slightly darkened.

Female: antennal scape slender, about five times as long as broad; funicular segments about 1·5 times as long as broad .... *menes* (Walker)

Ceranisus lepidotus sp. n.

Female.—Head and thorax dark green, gaster black with a slight bluish lustre. Antennae light fuscous, the scape and pedicellus darker, the former with a slight metallic tinge. Legs blackish-brown with a metallic tinge on the coxae, femora, and tibiae; all the knees, and the inner surface of the fore tibia, testaceous. Tegulae brownish; wings slightly smoky, especially the disc of the forewing; venation light fuscous. Length 0·95 mm.

Head.—Frons and vertex somewhat dull, with moderately fine but distinct reticulation which is slightly raised above the general surface; temples with delicate engraved (alutaceous) sculpture whose areoles tend to be longer than broad; face below toruli polished and virtually smooth. Antennae: scape slender (about 4·5 times as long as broad), fusiform; pedicellus rather more than twice as long as broad, longer than the funicle; first funicular segment quadrate, its breadth about two-thirds that of the pedicellus, second about as long as the first but a shade broader, quadrate or very slightly transverse; clava much broader than the funicle and (including its terminal spine) about twice as long as broad.

Pronotum finely and delicately reticulate, the sculpture very slightly raised above the surface. Mesoscutum, scutellum and dorsellum with fine engraved sculpture; axillae with obsolescent alutaceous sculpture. Propodeum with sculpture similar to that of the mesoscutum but very slightly stronger.

Forewing similar to that of *pacuvius* (Walker) (fig. 59) but slightly broader, and having the postmarginal vein (which is not very distinctly pigmented distally) apparently rather shorter, i.e., only slightly longer than the stigmal vein. Hindwing broader than in *pacuvius* and less strongly acute at its apex; length of fringe of hind margin slightly less than the maximum breadth of the wing.

Gaster ovate, about 1·4 times as long as broad, slightly narrower and much shorter than the thorax.

Male.—Unknown.

England, Berkshire, Wytham, 21.vi.1952, one female (Graham). Britain, unlocalised, one female (the holotype) in the Haliday Collection, National Musuem of Ireland, Dublin; the specimen is mounted upon a card, and the head of the pin which bears the card is coloured with red wax.

This species differs from the other European species known to me in having the frons and vertex somewhat dull and distinctly reticulate, with the sculpture slightly raised (instead of shiny with delicate engraved sculpture). The dorsum of the thorax also has rather stronger sculpture than in the other species. Otherwise *lepidotus* most resembles *pacuvius* (Walker), from which it further differs as follows:—

Almost the whole dorsal surface of the head and thorax is greenish (in *pacuvius* only the mesoscutum is ± greenish, the scutellum being purplish-bronze, the rest of the thorax bronze, the head bronze- or violet-tinged. The legs are darker (in *pacuvius* at least the tips of the tibiae, and the bases of the tarsi, are testaceous). The body is rather more squat, the gaster rather shorter (in female *pacuvius* it is long-ovate, at least as long as the thorax). In *pacuvius* the mesoscutum has very weak, engraved sculpture; the scutellum is polished and without, or virtually without, sculpture; the axillae, dorsellum, and propodeum are polished and nearly smooth.

Thripoctenoides Erdös

Erdös, 1954, *Ann. hist.-nat. Mus. hung.* (series nova), **5**: 345.

Thripoctenoides thione (Walker), comb. n.

Pteroptrix Thione Walker, 1839, *Mon. Chalciditum,* **1**: 19.

Walker placed this species in his Section 8 of *Pteroptrix;* his diagnosis of this section begins with the word "Fem". In his description of *thione* he omits any reference to its sex, which is contrary to his usual custom.

Only one specimen stands as *Pteroptrix thione* in the British Museum (Nat. Hist.) and as it agrees well enough with the description, it is taken as type; it is a male. Walker's reference to the female sex in his sectional diagnosis may have been a mistake; on the other hand his omission of any mention of the sex in his specific description may indicate that he had some doubt about this.

The type of *thione* is in reasonably good condition but the body is much shrunken which makes it difficult to see various structures. I place it provisionally in *Thripoctenoides* although it differs in several respects from the male of *carbonarius* Erdös, 1954, type-species of that genus. It differs from male *carbonarius* in having funicular segments 1-3 longer, whilst 4 and 5 are not so closely united; the mesoscutum has some delicate reticulate sculpture; the gastral petiole is small and subconical; the forewings are hyaline; and the legs are fuscous (the tarsi perhaps slightly paler).

Another species of the genus, *T. gaussi* Ferrière (1958, *Mitt. schweiz. ent. Ges.,* **31** (3-4): 321) is known only in the female sex; but several features in the structure and colour of *thione* make it unlikely to be male of *gaussi.*

No further material of *thione* has been seen.

Euderomphale Girault

Gyrolasia Howard, 1881, *Ann. Rep. U.S. Dept. Agric.,* **1880** (3): 369, pl. 24, fig. 5 (*nec* Förster, 1856, *Hym. Studien,* Heft **2**: 145).

Euderomphale Girault, 1916, *Canad. Ent.,* **48** (12): 410.

Aleurodiphagus Nowicki, 1929, *N. Beitr. syst. Insektenk.,* **4** (13-14): 155.

Cardiogaster Compere and Annecke, 1961, *J. ent. Soc. S. Africa,* **24** (1): 65 (*nec* Motschulsky, 1863, *Bull. Soc. Nat. Moscou,* **36**: 72).

This interesting genus has not hitherto been recorded from Britain. The question of its correct taxonomic position has caused some speculation (see Compere & Annecke, 1961: 65). Different names have also been applied to it as will be seen from the synonymy quoted above, and the question is rather complicated.

Howard's original description (1881: 369) of his [*Gyrolasia*] *flavimedia,* and the good figure which accompanies it, clearly show that his species belongs to the genus now being considered.

Peck (*in* Muesebeck, Krombein & Townes, 1951, *Hym. Amer. north of Mexico synoptic Catalog*: 432) cited *Gyrolasia flavimedia* Howard as being the same as *Euderomphale fuscipennis* Girault (the type-species of *Euderomphale*) and consequently transferred *flavimedia* to the latter genus. He also cited *Aleurodiphagus* Nowicki as a synonym of *Euderomphale* and designated *Gyrolasia flavimedia* Howard as the type-species of *Aleurodiphagus.*

Burks (1958, *in* Krombein et al., *Hym. Amer. north of Mexico synoptic Catalog, first suppl.*: 64) placed *Euderomphale* Girault in synonymy with *Cardiogaster* Motschulsky (on the authority of Gahan, according to Compere and Annecke, 1961, *ibid.*: 65). The latter authors state that Gahan arrived at this synonymy after having seen a specimen of the genus *Euderomphale* from India which had been determined as *Cardiogaster secundus* by Chandy Kurian.

I did not feel satisfied about this synonymy and in May 1962 mentioned the question to Dr. Bouček of Prague, who had recently seen Motschulsky's types; he told me that *Cardiogaster* belongs in fact to the Pteromalidae (Eunotinae) and thus has no connection with *Euderomphale*. Hence I am adopting the latter name for the genus now being discussed; Erdös (1961, *Ann. hist.-nat. Mus. Nat. hung.*, **53**: 482) has done the same.

Nowicki did not actually describe his genus *Aleurodiphagus* but (1929: 55) stated that it was based on the species-group of [*Gyrolasia*] *flavimedia* Howard, and also mentioned that *Derostenus clavicornis* Thomson (1878, *Hym. Scand.*, **5**: 273) belonged to *Aleurodiphagus*. According to Article 16 (a) (v) of the International Code of Zoological Nomenclature (1961), the citation of one or more available specific names constitutes an "indication" and validates the genus.

Euderomphale may be distinguished from all the other British genera of Entedontinae by its short clavate antennae, which have only one large funicular segment.

Euderomphale cerris Erdös

Euderomphale cerris Erdös, 1961, *Ann. hist.-nat. Mus. Nat. hung.* (*pars zoological*), **53**: 482.

New to Britain. England: Hampshire, Brockenhurst, Pignal Pond, 4.viii.1928, one male (B. N. Blood).

This is the only described species of the genus hitherto recorded from Europe (see Erdös, *loc. cit.*). Thanks to the kindness of Dr. Erdös I have been able to examine the holotype male of *cerris*.

Euderomphale sp.

England, Buckinghamshire, Hell Coppice, near Oakley, 16.viii.1958, one male; 30.viii.1958, one female (Graham). Kent, East Malling, x.1929, "with *Aleyrodes lonicerae* Walk." (A. M. Massee).

These specimens agree with some from Hungary kindly lent to me by Dr. J. Erdös and which he had determined as "*chelidonii* Nowicki". Nowicki (1929, *Neue Beitr. syst. Insektenk.*, **4** (13-14): 155), when erecting his genus *Aleurodiphagus*, stated "Genotype *chelidonii* (Koll. i. l.)". However, he did not validate Kollar's manuscript name *chelidonii* by a description or "indication" so that presumably it is not available.

The species now recorded from Britain differs from *cerris* as follows:

Male: antennal scape more strongly expanded (only about 1·5 times, instead of about twice, as long as broad); mid tibia broadly black at its apex (in *cerris* dark medially, but with the apex pale).

Male and *Female*: postmarginal vein present, practically as long as the stigmal vein (absent in *cerris*).

I believe that Dr. Erdös may wish to name this species, hence I am not doing so myself.

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(Other references are given in my paper of 1959, and are not repeated here).

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